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(54) Title: NOVEL NUCLEIC ACIDS AND POLYPEPTIDES

(57) Abstract: The present invention provides novel nucleic acids, novel polypeptide sequences encoded by these nucleic acids and uses thereof.

WO 03/054152 A2

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

NOVEL NUCLEIC ACIDS AND POLYPEPTIDES

1. CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part application of U.S. Provisional Application Serial No. 60/339,739 filed December 10, 2001 entitled "Novel Nucleic Acids and Secreted Polypeptides", Attorney Docket No. 811; U.S. Application Serial No. 10/128,558 filed April 22, 2002 entitled "Novel Nucleic Acids and Polypeptides", Attorney Docket No. 812A, which in turn claims the benefit of U.S. Provisional Application Serial No. 60/339,453 filed December 11, 2001 entitled "Novel Nucleic Acids and Polypeptides", Attorney Docket No. 812; U.S. Provisional Application Serial No. 60/365,384 filed March 14, 2002 entitled "Novel Nucleic Acids and Secreted Polypeptides", Attorney Docket No. 814; U.S. Provisional Application Serial No. 60/365,091 filed March 14, 2002 entitled "Novel Nucleic Acids and Polypeptides", Attorney Docket No. 815; U.S. Provisional Application Serial No. 60/372,615 filed April 12, 2002 entitled "Novel Nucleic Acids and Secreted Polypeptides", Attorney Docket No. 817; U.S. Provisional Application Serial No. 60/376,045 filed April 24, 2002 entitled "Novel Nucleic Acids and Secreted Polypeptides", Attorney Docket No. 817CIP; U.S. Provisional Application Serial No. 60/372,381 filed April 12, 2002 entitled "Novel Nucleic Acids and Polypeptides", Attorney Docket No. 818; PCT Application Serial No. PCT/US00/35017 filed December 22, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 784CIP3A/PCT, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/552,317 filed April 25, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 784CIP, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/488,725 filed January 21, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 784; PCT Application Serial No. PCT/US01/02623 filed January 25, 2001 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 785CIP3/PCT, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/491,404 filed January 25, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 785; PCT Application Serial No. PCT/US01/03800 filed February 5, 2001 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 787CIP3/PCT, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/560,875 filed April 27, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 787CIP, which in turn is a continuation-in-

part application of U.S. Application Serial No. 09/496,914 filed February 03, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 787; PCT Application Serial No. PCT/US01/04927 filed February 26, 2001 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 788CIP3/PCT, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/577,409 filed May 18, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 788CIP, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/515,126 filed February 28, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 788; PCT Application Serial No. PCT/US01/04941 filed March 5, 2001 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 789CIP3/PCT, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/574,454 filed May 19, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 789CIP, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/519,705 filed March 07, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 789; PCT Application Serial No. PCT/US01/08631 filed March 30, 2001 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 790CIP3/PCT, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/649,167 filed August 23, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 790CIP, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/540,217 filed March 31, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 790; PCT Application Serial No. PCT/US01/08656 filed April 18, 2001 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 791CIP3/PCT, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/770,160 filed January 26, 2001 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 791CIP, which is in turn a continuation-in-part application of U.S. Application Serial No. 09/552,929 filed April 18, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 791; and PCT Application Serial No. PCT/US01/14827 filed May 16, 2001 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 792CIP3/PCT, which in turn is a continuation-in-part application of U.S. Application Serial No. 09/577,408 filed May 18, 2000 entitled "Novel Contigs Obtained from Various Libraries", Attorney Docket No. 792; all of which are incorporated herein by reference in their entirety, specifically including, but not limited to , incorporation by reference of the

tables in each application displaying sequence information, ematrix signatures, pfam signatures, signal peptide information, transmembrane domain information, chromosomal localization and tissue distribution information, and/or 3-dimensional structural information.

2. BACKGROUND OF THE INVENTION

2.1 TECHNICAL FIELD

The present invention provides novel polynucleotides and proteins encoded by such polynucleotides, along with uses for these polynucleotides and proteins, for example in therapeutic, diagnostic and research methods.

2.2 BACKGROUND

Technology aimed at the discovery of protein factors (including e.g., cytokines, such as lymphokines, interferons, circulating soluble factors, chemokines, and interleukins) has matured rapidly over the past decade. The now routine hybridization cloning and expression cloning techniques clone novel polynucleotides "directly" in the sense that they rely on information directly related to the discovered protein (i.e., partial DNA/amino acid sequence of the protein in the case of hybridization cloning; activity of the protein in the case of expression cloning). More recent "indirect" cloning techniques such as signal sequence cloning, which isolates DNA sequences based on the presence of a now well-recognized secretory leader sequence motif, as well as various PCR-based or low stringency hybridization-based cloning techniques, have advanced the state of the art by making available large numbers of DNA/amino acid sequences for proteins that are known to have biological activity, for example, by virtue of their secreted nature in the case of leader sequence cloning, by virtue of their cell or tissue source in the case of PCR-based techniques, or by virtue of structural similarity to other genes of known biological activity.

Identified polynucleotide and polypeptide sequences have numerous applications in, for example, diagnostics, forensics, gene mapping; identification of mutations responsible for genetic disorders or other traits, to assess biodiversity, and to produce many other types of data and products dependent on DNA and amino acid sequences.

3. SUMMARY OF THE INVENTION

The compositions of the present invention include novel isolated polypeptides, novel isolated polynucleotides encoding such polypeptides, including recombinant DNA molecules,

cloned genes or degenerate variants thereof, especially naturally occurring variants such as allelic variants, antisense polynucleotide molecules, and antibodies that specifically recognize one or more epitopes present on such polypeptides, as well as hybridomas producing such antibodies.

The compositions of the present invention additionally include vectors, including expression vectors, containing the polynucleotides of the invention, cells genetically engineered to contain such polynucleotides and cells genetically engineered to express such polynucleotides.

The present invention relates to a collection or library of at least one novel nucleic acid sequence assembled from expressed sequence tags (ESTs) isolated mainly by sequencing by hybridization (SBH), and in some cases, sequences obtained from one or more public databases. The invention relates also to the proteins encoded by such polynucleotides, along with therapeutic, diagnostic and research utilities for these polynucleotides and proteins. These nucleic acid sequences are designated as SEQ ID NO: 1-911, or 1823-2478 and are provided in the Sequence Listing. In the nucleic acids provided in the Sequence Listing, A is adenine; C is cytosine; G is guanine; T is thymine; and N is any of the four bases or unknown. In the amino acids provided in the Sequence Listing, * corresponds to the stop codon.

The nucleic acid sequences of the present invention also include, nucleic acid sequences that hybridize to the complement of SEQ ID NO: 1-911, or 1823-2478 under stringent hybridization conditions; nucleic acid sequences which are allelic variants or species homologues of any of the nucleic acid sequences recited above, or nucleic acid sequences that encode a peptide comprising a specific domain or truncation of the peptides encoded by SEQ ID NO: 1-911, or 1823-2478. A polynucleotide comprising a nucleotide sequence having at least 90% identity to an identifying sequence of SEQ ID NO: 1-911, or 1823-2478 or a degenerate variant or fragment thereof. The identifying sequence can be 100 base pairs in length.

The nucleic acid sequences of the present invention also include the sequence information from the nucleic acid sequences of SEQ ID NO: 1-911, or 1823-2478. The sequence information can be a segment of any one of SEQ ID NO: 1-911, or 1823-2478 that uniquely identifies or represents the sequence information of SEQ ID NO: 1-911, or 1823-2478.

A collection as used in this application can be a collection of only one polynucleotide. The collection of sequence information or identifying information of each sequence can be provided on a nucleic acid array. In one embodiment, segments of sequence information are

provided on a nucleic acid array to detect the polynucleotide that contains the segment. The array can be designed to detect full-match or mismatch to the polynucleotide that contains the segment. The collection can also be provided in a computer-readable format.

This invention also includes the reverse or direct complement of any of the nucleic acid sequences recited above; cloning or expression vectors containing the nucleic acid sequences; and host cells or organisms transformed with these expression vectors. Nucleic acid sequences (or their reverse or direct complements) according to the invention have numerous applications in a variety of techniques known to those skilled in the art of molecular biology, such as use as hybridization probes, use as primers for PCR, use in an array, use in computer-readable media, use in sequencing full-length genes, use for chromosome and gene mapping, use in the recombinant production of protein, and use in the generation of anti-sense DNA or RNA, their chemical analogs and the like.

In a preferred embodiment, the nucleic acid sequences of SEQ ID NO: 1-911, or 1823-2478 or novel segments or parts of the nucleic acids of the invention are used as primers in expression assays that are well known in the art. In a particularly preferred embodiment, the nucleic acid sequences of SEQ ID NO: 1-911, or 1823-2478 or novel segments or parts of the nucleic acids provided herein are used in diagnostics for identifying expressed genes or, as well known in the art and exemplified by Vollrath et al., Science 258:52-59 (1992), as expressed sequence tags for physical mapping of the human genome.

The isolated polynucleotides of the invention include, but are not limited to, a polynucleotide comprising any one of the nucleotide sequences set forth in SEQ ID NO: 1-911, or 1823-2478; a polynucleotide comprising any of the full length protein coding sequences of SEQ ID NO: 1-911, or 1823-2478; and a polynucleotide comprising any of the nucleotide sequences of the mature protein coding sequences of SEQ ID NO: 1-911, or 1823-2478. The polynucleotides of the present invention also include, but are not limited to, a polynucleotide that hybridizes under stringent hybridization conditions to (a) the complement of any one of the nucleotide sequences set forth in SEQ ID NO: 1-911, or 1823-2478; (b) a nucleotide sequence encoding any one of the amino acid sequences set forth in SEQ ID NO: 1-911, or 1823-2478; (c) a polynucleotide which is an allelic variant of any polynucleotides recited above; (d) a polynucleotide which encodes a species homologue (e.g. orthologs) of any of the proteins recited above; or (e) a polynucleotide that encodes a polypeptide comprising a specific domain or truncation of any of the polypeptides comprising an amino acid sequence set forth in SEQ ID NO: 912-1822, or 2479-3134, or Tables 3A, 3B, 5, or 6.

The isolated polypeptides of the invention include, but are not limited to, a polypeptide comprising any of the amino acid sequences set forth in the Sequence Listing; or the corresponding full length or mature protein. Polypeptides of the invention (SEQ ID NO: 912-1822, or 2479-3134) also include polypeptides with biological activity that are encoded by (a) any of the polynucleotides having a nucleotide sequence set forth in SEQ ID NO: 1-911, or 1823-2478; or (b) polynucleotides that hybridize to the complement of the polynucleotides of (a) under stringent hybridization conditions. Biologically active variants of any of the polypeptide sequences in the Sequence Listing, and "substantial equivalents" thereof (e.g., with at least about 65%, 70%, 75%, 80%, 85%, 90%, 95%, 98% or 99% amino acid sequence identity) that preferably retain biological activity are also contemplated. The polypeptides of the invention may be wholly or partially chemically synthesized but are preferably produced by recombinant means using the genetically engineered cells (e.g. host cells) of the invention.

The invention also provides compositions comprising a polypeptide of the invention. Polypeptide compositions of the invention may further comprise an acceptable carrier, such as a hydrophilic, e.g., pharmaceutically acceptable, carrier.

The invention also provides host cells transformed or transfected with a polynucleotide of the invention.

The invention also relates to methods for producing a polypeptide of the invention comprising growing a culture of the host cells of the invention in a suitable culture medium under conditions permitting expression of the desired polypeptide, and purifying the polypeptide from the culture or from the host cells. Preferred embodiments include those in which the protein produced by such processes is a mature form of the protein.

Polynucleotides according to the invention have numerous applications in a variety of techniques known to those skilled in the art of molecular biology. These techniques include use as hybridization probes, use as oligomers, or primers, for PCR, use for chromosome and gene mapping, use in the recombinant production of protein, and use in generation of anti-sense DNA or RNA, their chemical analogs and the like. For example, when the expression of an mRNA is largely restricted to a particular cell or tissue type, polynucleotides of the invention can be used as hybridization probes to detect the presence of the particular cell or tissue mRNA in a sample using, *e.g., in situ* hybridization.

In other exemplary embodiments, the polynucleotides are used in diagnostics as expressed sequence tags for identifying expressed genes or, as well known in the art and

exemplified by Vollrath et al., Science 258:52-59 (1992), as expressed sequence tags for physical mapping of the human genome.

The polypeptides according to the invention can be used in a variety of conventional procedures and methods that are currently applied to other proteins. For example, a polypeptide of the invention can be used to generate an antibody that specifically binds the polypeptide. Such antibodies, particularly monoclonal antibodies, are useful for detecting or quantitating the polypeptide in tissue. The polypeptides of the invention can also be used as molecular weight markers, and as a food supplement.

Methods are also provided for preventing, treating, or ameliorating a medical condition which comprises the step of administering to a mammalian subject a therapeutically effective amount of a composition comprising a polypeptide of the present invention and a pharmaceutically acceptable carrier.

In particular, the polypeptides and polynucleotides of the invention can be utilized, for example, in methods for the prevention and/or treatment of disorders involving aberrant protein expression or biological activity.

The present invention further relates to methods for detecting the presence of the polynucleotides or polypeptides of the invention in a sample. Such methods can, for example, be utilized as part of prognostic and diagnostic evaluation of disorders as recited herein and for the identification of subjects exhibiting a predisposition to such conditions. The invention provides a method for detecting the polynucleotides of the invention in a sample, comprising contacting the sample with a compound that binds to and forms a complex with the polynucleotide of interest for a period sufficient to form the complex and under conditions sufficient to form a complex and detecting the complex such that if a complex is detected, the polynucleotide of interest is detected. The invention also provides a method for detecting the polypeptides of the invention in a sample comprising contacting the sample with a compound that binds to and forms a complex with the polypeptide under conditions and for a period sufficient to form the complex and detecting the formation of the complex such that if a complex is formed, the polypeptide is detected.

The invention also provides kits comprising polynucleotide probes and/or monoclonal antibodies, and optionally quantitative standards, for carrying out methods of the invention. Furthermore, the invention provides methods for evaluating the efficacy of drugs, and monitoring the progress of patients, involved in clinical trials for the treatment of disorders as recited above.

The invention also provides methods for the identification of compounds that modulate (i.e., increase or decrease) the expression or activity of the polynucleotides and/or polypeptides of the invention. Such methods can be utilized, for example, for the identification of compounds that can ameliorate symptoms of disorders as recited herein. Such methods can include, but are not limited to, assays for identifying compounds and other substances that interact with (*e.g.*, bind to) the polypeptides of the invention. The invention provides a method for identifying a compound that binds to the polypeptides of the invention comprising contacting the compound with a polypeptide of the invention in a cell for a time sufficient to form a polypeptide/compound complex, wherein the complex drives expression of a reporter gene sequence in the cell; and detecting the complex by detecting the reporter gene sequence expression such that if expression of the reporter gene is detected the compound that binds to a polypeptide of the invention is identified.

The methods of the invention also provide methods for treatment which involve the administration of the polynucleotides or polypeptides of the invention to individuals exhibiting symptoms or tendencies. In addition, the invention encompasses methods for treating diseases or disorders as recited herein comprising administering compounds and other substances that modulate the overall activity of the target gene products. Compounds and other substances can affect such modulation either on the level of target gene/protein expression or target protein activity.

The polypeptides of the present invention (e.g. SEQ ID NO: 912-1822, or 2479-3134) and the polynucleotides encoding them (e.g. SEQ ID NO: 1-911, or 1823-2478) are also useful for the same functions known to one of skill in the art as the polypeptides and polynucleotides to which they have homology (set forth in Tables 2A and 2B); for which they have a signature region (as set forth in Tables 3A and 3B); or for which they have homology to a gene family (as set forth in Tables 4A and 4B). If no homology is set forth for a sequence, then the polypeptides and polynucleotides of the present invention are useful for a variety of applications, as described herein, including use in arrays for detection.

4. DETAILED DESCRIPTION OF THE INVENTION

4.1 DEFINITIONS

It must be noted that as used herein and in the appended claims, the singular forms "a", "an" and "the" include plural references unless the context clearly dictates otherwise.

The term "active" refers to those forms of the polypeptide which retain the biologic and/or immunologic activities of any naturally occurring polypeptide. According to the invention, the terms "biologically active" or "biological activity" refer to a protein or peptide having structural, regulatory or biochemical functions of a naturally occurring molecule. Likewise "immunologically active" or "immunological activity" refers to the capability of the natural, recombinant or synthetic polypeptide to induce a specific immune response in appropriate animals or cells and to bind with specific antibodies.

The term "activated cells" as used in this application are those cells which are engaged in extracellular or intracellular membrane trafficking, including the export of secretory or enzymatic molecules as part of a normal or disease process.

The terms "complementary" or "complementarity" refer to the natural binding of polynucleotides by base pairing. For example, the sequence 5'-AGT-3' binds to the complementary sequence 3'-TCA-5'. Complementarity between two single-stranded molecules may be "partial" such that only certain portion(s) of the nucleic acids bind or it may be "complete" such that total complementarity exists between the single stranded molecules. The degree of complementarity between the nucleic acid strands has significant effects on the efficiency and strength of the hybridization between the nucleic acid strands.

The term "embryonic stem cells (ES)" refers to a cell that can give rise to many differentiated cell types in an embryo or an adult, including the germ cells. The term "germ line stem cells (GSCs)" refers to stem cells derived from primordial stem cells that provide a steady and continuous source of germ cells for the production of gametes. The term "primordial germ cells (PGCs)" refers to a small population of cells set aside from other cell lineages particularly from the yolk sac, mesenteries, or gonadal ridges during embryogenesis that have the potential to differentiate into germ cells and other cells. PGCs are the source from which GSCs and ES cells are derived. The PGCs, the GSCs and the ES cells are capable of self-renewal. Thus these cells not only populate the germ line and give rise to a plurality of terminally differentiated cells that comprise the adult specialized organs, but are able to regenerate themselves.

The term "expression modulating fragment," EMF, means a series of nucleotides which modulates the expression of an operably linked ORF or another EMF.

As used herein, a sequence is said to "modulate the expression of an operably linked sequence" when the expression of the sequence is altered by the presence of the EMF. EMFs include, but are not limited to, promoters, and promoter modulating sequences

(inducible elements). One class of EMFs are nucleic acid fragments which induce the expression of an operably linked ORF in response to a specific regulatory factor or physiological event.

The terms "nucleotide sequence" or "nucleic acid" or "polynucleotide" or "oligonucleotide" are used interchangeably and refer to a heteropolymer of nucleotides or the sequence of these nucleotides. These phrases also refer to DNA or RNA of genomic or synthetic origin which may be single-stranded or double-stranded and may represent the sense or the antisense strand, to peptide nucleic acid (PNA) or to any DNA-like or RNA-like material. In the sequences herein A is adenine, C is cytosine, T is thymine, G is guanine and N is A, C, G, or T (U) or unknown. It is contemplated that where the polynucleotide is RNA, the T (thymine) in the sequences provided herein is substituted with U (uracil). Generally, nucleic acid segments provided by this invention may be assembled from fragments of the genome and short oligonucleotide linkers, or from a series of oligonucleotides, or from individual nucleotides, to provide a synthetic nucleic acid which is capable of being expressed in a recombinant transcriptional unit comprising regulatory elements derived from a microbial or viral operon, or a eukaryotic gene.

The terms "oligonucleotide fragment" or a "polynucleotide fragment", "portion," or "segment" or "probe" or "primer" are used interchangeably and refer to a sequence of nucleotide residues which are at least about 5 nucleotides, more preferably at least about 7 nucleotides, more preferably at least about 9 nucleotides, more preferably at least about 11 nucleotides and most preferably at least about 17 nucleotides. The fragment is preferably less than about 500 nucleotides, preferably less than about 200 nucleotides, more preferably less than about 100 nucleotides, more preferably less than about 50 nucleotides and most preferably less than 30 nucleotides. Preferably the probe is from about 6 nucleotides to about 200 nucleotides, preferably from about 15 to about 50 nucleotides, more preferably from about 17 to 30 nucleotides and most preferably from about 20 to 25 nucleotides. Preferably the fragments can be used in polymerase chain reaction (PCR), various hybridization procedures or microarray procedures to identify or amplify identical or related parts of mRNA or DNA molecules. A fragment or segment may uniquely identify each polynucleotide sequence of the present invention. Preferably the fragment comprises a sequence substantially similar to any one of SEQ ID NO: 1-911, or 1823-2478.

Probes may, for example, be used to determine whether specific mRNA molecules are present in a cell or tissue or to isolate similar nucleic acid sequences from chromosomal

DNA as described by Walsh et al. (Walsh, P.S. et al., 1992, PCR Methods Appl 1:241-250). They may be labeled by nick translation, Klenow fill-in reaction, PCR, or other methods well known in the art. Probes of the present invention, their preparation and/or labeling are elaborated in Sambrook, J. et al., 1989, Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Laboratory, NY; or Ausubel, F.M. et al., 1989, Current Protocols in Molecular Biology, John Wiley & Sons, New York NY, both of which are incorporated herein by reference in their entirety.

The nucleic acid sequences of the present invention also include the sequence information from the nucleic acid sequences of SEQ ID NO: 1-911, or 1823-2478. The sequence information can be a segment of any one of SEQ ID NO: 1-911, or 1823-2478 that uniquely identifies or represents the sequence information of that sequence of SEQ ID NO: 1-911, or 1823-2478, or those segments identified in Tables 3A, 3B, 5, or 6. One such segment can be a twenty-mer nucleic acid sequence because the probability that a twenty-mer is fully matched in the human genome is 1 in 300. In the human genome, there are three billion base pairs in one set of chromosomes. Because 4^{20} possible twenty-mers exist, there are 300 times more twenty-mers than there are base pairs in a set of human chromosomes. Using the same analysis, the probability for a seventeen-mer to be fully matched in the human genome is approximately 1 in 5. When these segments are used in arrays for expression studies, fifteen-mer segments can be used. The probability that the fifteen-mer is fully matched in the expressed sequences is also approximately one in five because expressed sequences comprise less than approximately 5% of the entire genome sequence.

Similarly, when using sequence information for detecting a single mismatch, a segment can be a twenty-five mer. The probability that the twenty-five mer would appear in a human genome with a single mismatch is calculated by multiplying the probability for a full match ($1\div4^{25}$) times the increased probability for mismatch at each nucleotide position (3 x 25). The probability that an eighteen mer with a single mismatch can be detected in an array for expression studies is approximately one in five. The probability that a twenty-mer with a single mismatch can be detected in a human genome is approximately one in five.

The term "open reading frame," ORF, means a series of nucleotide triplets coding for amino acids without any termination codons and is a sequence translatable into protein.

The terms "operably linked" or "operably associated" refer to functionally related nucleic acid sequences. For example, a promoter is operably associated or operably linked with a coding sequence if the promoter controls the transcription of the coding sequence.

While operably linked nucleic acid sequences can be contiguous and in the same reading frame, certain genetic elements e.g. repressor genes are not contiguously linked to the coding sequence but still control transcription/translation of the coding sequence.

The term "pluripotent" refers to the capability of a cell to differentiate into a number of differentiated cell types that are present in an adult organism. A pluripotent cell is restricted in its differentiation capability in comparison to a totipotent cell.

The terms "polypeptide" or "peptide" or "amino acid sequence" refer to an oligopeptide, peptide, polypeptide or protein sequence or fragment thereof and to naturally occurring or synthetic molecules. A polypeptide "fragment," "portion," or "segment" is a stretch of amino acid residues of at least about 5 amino acids, preferably at least about 7 amino acids, more preferably at least about 9 amino acids and most preferably at least about 17 or more amino acids. The peptide preferably is not greater than about 200 amino acids, more preferably less than 150 amino acids and most preferably less than 100 amino acids. Preferably the peptide is from about 5 to about 200 amino acids. To be active, any polypeptide must have sufficient length to display biological and/or immunological activity.

The term "naturally occurring polypeptide" refers to polypeptides produced by cells that have not been genetically engineered and specifically contemplates various polypeptides arising from post-translational modifications of the polypeptide including, but not limited to, acetylation, carboxylation, glycosylation, phosphorylation, lipidation and acylation.

The term "translated protein coding portion" means a sequence which encodes for the full-length protein which may include any leader sequence or any processing sequence.

The term "mature protein coding sequence" means a sequence which encodes a peptide or protein without a signal or leader sequence. The "mature protein portion" means that portion of the protein which does not include a signal or leader sequence. The peptide may have been produced by processing in the cell which removes any leader/signal sequence. The mature protein portion may or may not include the initial methionine residue. The methionine residue may be removed from the protein during processing in the cell. The peptide may be produced synthetically or the protein may have been produced using a polynucleotide only encoding for the mature protein coding sequence.

The term "derivative" refers to polypeptides chemically modified by such techniques as ubiquitination, labeling (e.g., with radionuclides or various enzymes), covalent polymer attachment such as pegylation (derivatization with polyethylene glycol) and insertion or

substitution by chemical synthesis of amino acids such as ornithine, which do not normally occur in human proteins.

The term "variant"(or "analog") refers to any polypeptide differing from naturally occurring polypeptides by amino acid insertions, deletions, and substitutions, created using, *e.g.*, recombinant DNA techniques. Guidance in determining which amino acid residues may be replaced, added or deleted without abolishing activities of interest, may be found by comparing the sequence of the particular polypeptide with that of homologous peptides and minimizing the number of amino acid sequence changes made in regions of high homology (conserved regions) or by replacing amino acids with consensus sequence.

Alternatively, recombinant variants encoding these same or similar polypeptides may be synthesized or selected by making use of the "redundancy" in the genetic code. Various codon substitutions, such as the silent changes which produce various restriction sites, may be introduced to optimize cloning into a plasmid or viral vector or expression in a particular prokaryotic or eukaryotic system. Mutations in the polynucleotide sequence may be reflected in the polypeptide or domains of other peptides added to the polypeptide to modify the properties of any part of the polypeptide, to change characteristics such as ligand-binding affinities, interchain affinities, or degradation/turnover rate.

Preferably, amino acid "substitutions" are the result of replacing one amino acid with another amino acid having similar structural and/or chemical properties, *i.e.*, conservative amino acid replacements. "Conservative" amino acid substitutions may be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity, and/or the amphipathic nature of the residues involved. For example, nonpolar (hydrophobic) amino acids include alanine, leucine, isoleucine, valine, proline, phenylalanine, tryptophan, and methionine; polar neutral amino acids include glycine, serine, threonine, cysteine, tyrosine, asparagine, and glutamine; positively charged (basic) amino acids include arginine, lysine, and histidine; and negatively charged (acidic) amino acids include aspartic acid and glutamic acid. "Insertions" or "deletions" are preferably in the range of about 1 to 20 amino acids, more preferably 1 to 10 amino acids. The variation allowed may be experimentally determined by systematically making insertions, deletions, or substitutions of amino acids in a polypeptide molecule using recombinant DNA techniques and assaying the resulting recombinant variants for activity.

Alternatively, where alteration of function is desired, insertions, deletions or non-conservative alterations can be engineered to produce altered polypeptides. Such

alterations can, for example, alter one or more of the biological functions or biochemical characteristics of the polypeptides of the invention. For example, such alterations may change polypeptide characteristics such as ligand-binding affinities, interchain affinities, or degradation/turnover rate. Further, such alterations can be selected so as to generate polypeptides that are better suited for expression, scale up and the like in the host cells chosen for expression. For example, cysteine residues can be deleted or substituted with another amino acid residue in order to eliminate disulfide bridges.

The terms "purified" or "substantially purified" as used herein denotes that the indicated nucleic acid or polypeptide is present in the substantial absence of other biological macromolecules, *e.g.*, polynucleotides, proteins, and the like. In one embodiment, the polynucleotide or polypeptide is purified such that it constitutes at least 95% by weight, more preferably at least 99% by weight, of the indicated biological macromolecules present (but water, buffers, and other small molecules, especially molecules having a molecular weight of less than 1000 daltons, can be present).

The term "isolated" as used herein refers to a nucleic acid or polypeptide separated from at least one other component (e.g., nucleic acid or polypeptide) present with the nucleic acid or polypeptide in its natural source. In one embodiment, the nucleic acid or polypeptide is found in the presence of (if anything) only a solvent, buffer, ion, or other component normally present in a solution of the same. The terms "isolated" and "purified" do not encompass nucleic acids or polypeptides present in their natural source.

The term "recombinant," when used herein to refer to a polypeptide or protein, means that a polypeptide or protein is derived from recombinant (*e.g.*, microbial, insect, or mammalian) expression systems. "Microbial" refers to recombinant polypeptides or proteins made in bacterial or fungal (e.g., yeast) expression systems. As a product, "recombinant microbial" defines a polypeptide or protein essentially free of native endogenous substances and unaccompanied by associated native glycosylation. Polypeptides or proteins expressed in most bacterial cultures, *e.g., E. coli*, will be free of glycosylation modifications; polypeptides or proteins expressed in yeast will have a glycosylation pattern in general different from those expressed in mammalian cells.

The term "recombinant expression vehicle or vector" refers to a plasmid or phage or virus or vector, for expressing a polypeptide from a DNA (RNA) sequence. An expression vehicle can comprise a transcriptional unit comprising an assembly of (1) a genetic element or elements having a regulatory role in gene expression, for example, promoters or

enhancers, (2) a structural or coding sequence which is transcribed into mRNA and translated into protein, and (3) appropriate transcription initiation and termination sequences. Structural units intended for use in yeast or eukaryotic expression systems preferably include a leader sequence enabling extracellular secretion of translated protein by a host cell. Alternatively, where recombinant protein is expressed without a leader or transport sequence, it may include an amino terminal methionine residue. This residue may or may not be subsequently cleaved from the expressed recombinant protein to provide a final product.

The term "recombinant expression system" means host cells which have stably integrated a recombinant transcriptional unit into chromosomal DNA or carry the recombinant transcriptional unit extrachromosomally. Recombinant expression systems as defined herein will express heterologous polypeptides or proteins upon induction of the regulatory elements linked to the DNA segment or synthetic gene to be expressed. This term also means host cells which have stably integrated a recombinant genetic element or elements having a regulatory role in gene expression, for example, promoters or enhancers. Recombinant expression systems as defined herein will express polypeptides or proteins endogenous to the cell upon induction of the regulatory elements linked to the endogenous DNA segment or gene to be expressed. The cells can be prokaryotic or eukaryotic.

The term "secreted" includes a protein that is transported across or through a membrane, including transport as a result of signal sequences in its amino acid sequence when it is expressed in a suitable host cell. "Secreted" proteins include without limitation proteins secreted wholly (*e.g.*, soluble proteins) or partially (*e.g.*, receptors) from the cell in which they are expressed. "Secreted" proteins also include without limitation proteins that are transported across the membrane of the endoplasmic reticulum. "Secreted" proteins are also intended to include proteins containing non-typical signal sequences (e.g. Interleukin-1 Beta, see Krasney, P.A. and Young, P.R. (1992) Cytokine 4(2): 134 -143) and factors released from damaged cells (e.g. Interleukin-1 Receptor Antagonist, see Arend, W.P. et. al. (1998) Annu. Rev. Immunol. 16:27-55)

Where desired, an expression vector may be designed to contain a "signal or leader sequence" which will direct the polypeptide through the membrane of a cell. Such a sequence may be naturally present on the polypeptides of the present invention or provided from heterologous protein sources by recombinant DNA techniques.

The term "stringent" is used to refer to conditions that are commonly understood in the art as stringent. Stringent conditions can include highly stringent conditions (i.e., hybridization to filter-bound DNA in 0.5 M $NaHPO_4$, 7% sodium dodecyl sulfate (SDS), 1 mM EDTA at 65°C, and washing in 0.1X SSC/0.1% SDS at 68°C), and moderately stringent conditions (i.e., washing in 0.2X SSC/0.1% SDS at 42°C). Other exemplary hybridization conditions are described herein in the examples.

In instances of hybridization of deoxyoligonucleotides, additional exemplary stringent hybridization conditions include washing in 6X SSC/0.05% sodium pyrophosphate at 37°C (for 14-base oligonucleotides), 48°C (for 17-base oligonucleotides), 55°C (for 20-base oligonucleotides), and 60°C (for 23-base oligonucleotides).

As used herein, "substantially equivalent" or "substantially similar" can refer both to nucleotide and amino acid sequences, for example a mutant sequence, that varies from a reference sequence by one or more substitutions, deletions, or additions, the net effect of which does not result in an adverse functional dissimilarity between the reference and subject sequences. Typically, such a substantially equivalent sequence varies from one of those listed herein by no more than about 35% (*i.e.*, the number of individual residue substitutions, additions, and/or deletions in a substantially equivalent sequence, as compared to the corresponding reference sequence, divided by the total number of residues in the substantially equivalent sequence is about 0.35 or less). Such a sequence is said to have 65% sequence identity to the listed sequence. In one embodiment, a substantially equivalent, *e.g.*, mutant, sequence of the invention varies from a listed sequence by no more than 30% (70% sequence identity); in a variation of this embodiment, by no more than 25% (75% sequence identity); and in a further variation of this embodiment, by no more than 20% (80% sequence identity) and in a further variation of this embodiment, by no more than 10% (90% sequence identity) and in a further variation of this embodiment, by no more that 5% (95% sequence identity). Substantially equivalent, *e.g.*, mutant, amino acid sequences according to the invention preferably have at least 80% sequence identity with a listed amino acid sequence, more preferably at least 85% sequence identity, more preferably at least 90% sequence identity, more preferably at least 95% sequence identity, more preferably at least 98% sequence identity, and most preferably at least 99% sequence identity. Substantially equivalent nucleotide sequence of the invention can have lower percent sequence identities, taking into account, for example, the redundancy or degeneracy of the genetic code. Preferably, the nucleotide sequence has at least about 65% identity, more preferably at least

about 75% identity, more preferably at least about 80% sequence identity, more preferably at least 85% sequence identity, more preferably at least 90% sequence identity, more preferably at least about 95% sequence identity, more preferably at least 98% sequence identity, and most preferably at least 99% sequence identity. For the purposes of the present invention, sequences having substantially equivalent biological activity and substantially equivalent expression characteristics are considered substantially equivalent. For the purposes of determining equivalence, truncation of the mature sequence (*e.g.*, via a mutation which creates a new stop codon) should be disregarded. Sequence identity may be determined, e.g., using the Jotun Hein method (Hein, J. (1990) Methods Enzymol. 183:626-645). Identity between sequences can also be determined by other methods known in the art, e.g. by varying hybridization conditions.

The term "totipotent" refers to the capability of a cell to differentiate into all of the cell types of an adult organism.

The term "transformation" means introducing DNA into a suitable host cell so that the DNA is replicable, either as an extrachromosomal element, or by chromosomal integration. The term "transfection" refers to the taking up of an expression vector by a suitable host cell, whether or not any coding sequences are in fact expressed. The term "infection" refers to the introduction of nucleic acids into a suitable host cell by use of a virus or viral vector.

As used herein, an "uptake modulating fragment," UMF, means a series of nucleotides which mediate the uptake of a linked DNA fragment into a cell. UMFs can be readily identified using known UMFs as a target sequence or target motif with the computer-based systems described below. The presence and activity of a UMF can be confirmed by attaching the suspected UMF to a marker sequence. The resulting nucleic acid molecule is then incubated with an appropriate host under appropriate conditions and the uptake of the marker sequence is determined. As described above, a UMF will increase the frequency of uptake of a linked marker sequence.

Each of the above terms is meant to encompass all that is described for each, unless the context dictates otherwise.

4.2 NUCLEIC ACIDS OF THE INVENTION

Nucleotide sequences of the invention are set forth in the Sequence Listing.

The isolated polynucleotides of the invention include a polynucleotide comprising the nucleotide sequences of SEQ ID NO: 1-911, or 1823-2478; a polynucleotide encoding any one of the peptide sequences of SEQ ID NO: 1-911, or 1823-2478; and a polynucleotide comprising the nucleotide sequence encoding the mature protein coding sequence of the polynucleotides of any one of SEQ ID NO: 1-911, or 1823-2478. The polynucleotides of the present invention also include, but are not limited to, a polynucleotide that hybridizes under stringent conditions to (a) the complement of any of the nucleotides sequences of SEQ ID NO: 1-911, or 1823-2478; (b) nucleotide sequences encoding any one of the amino acid sequences set forth in the Sequence Listing, ; (c) a polynucleotide which is an allelic variant of any polynucleotide recited above; (d) a polynucleotide which encodes a species homologue of any of the proteins recited above; or (e) a polynucleotide that encodes a polypeptide comprising a specific domain or truncation of the polypeptides of SEQ ID NO: 912-1822, or 2479-3134 (for example, as set forth in Tables 3A, 3B, 5, or 6). Domains of interest may depend on the nature of the encoded polypeptide; e.g., domains in receptor-like polypeptides include ligand-binding, extracellular, transmembrane, or cytoplasmic domains, or combinations thereof; domains in immunoglobulin-like proteins include the variable immunoglobulin-like domains; domains in enzyme-like polypeptides include catalytic and substrate binding domains; and domains in ligand polypeptides include receptor-binding domains.

The polynucleotides of the invention include naturally occurring or wholly or partially synthetic DNA, e.g., cDNA and genomic DNA, and RNA, e.g., mRNA. The polynucleotides may include entire coding region of the cDNA or may represent a portion of the coding region of the cDNA.

The present invention also provides genes corresponding to the cDNA sequences disclosed herein. The corresponding genes can be isolated in accordance with known methods using the sequence information disclosed herein. Such methods include the preparation of probes or primers from the disclosed sequence information for identification and/or amplification of genes in appropriate genomic libraries or other sources of genomic materials. Further 5' and 3' sequence can be obtained using methods known in the art. For example, full length cDNA or genomic DNA that corresponds to any of the polynucleotides of SEQ ID NO: 1-911, or 1823-2478 can be obtained by screening appropriate cDNA or genomic DNA libraries under suitable hybridization conditions using any of the polynucleotides of SEQ ID NO: 1-911, or 1823-2478 or a portion thereof as a probe. Alternatively, the polynucleotides of

SEQ ID NO: 1-911, or 1823-2478 may be used as the basis for suitable primer(s) that allow identification and/or amplification of genes in appropriate genomic DNA or cDNA libraries.

The nucleic acid sequences of the invention can be assembled from ESTs and sequences (including cDNA and genomic sequences) obtained from one or more public databases, such as dbEST, gbpri, and UniGene. The EST sequences can provide identifying sequence information, representative fragment or segment information, or novel segment information for the full-length gene.

The polynucleotides of the invention also provide polynucleotides including nucleotide sequences that are substantially equivalent to the polynucleotides recited above. Polynucleotides according to the invention can have, *e.g.*, at least about 65%, at least about 70%, at least about 75%, at least about 80%, 81%, 82%, 83%, 84%, more typically at least about 85%, 86%, 87%, 88%, 89%, more typically at least about 90%, 91%, 92%, 93%, 94%, and even more typically at least about 95%, 96%, 97%, 98%, 99% sequence identity to a polynucleotide recited above.

Included within the scope of the nucleic acid sequences of the invention are nucleic acid sequence fragments that hybridize under stringent conditions to any of the nucleotide sequences of SEQ ID NO: 1-911, or 1823-2478, or complements thereof, which fragment is greater than about 5 nucleotides, preferably 7 nucleotides, more preferably greater than 9 nucleotides and most preferably greater than 17 nucleotides. Fragments of, e.g. 15, 17, or 20 nucleotides or more that are selective for (i.e. specifically hybridize to) any one of the polynucleotides of the invention are contemplated. Probes capable of specifically hybridizing to a polynucleotide can differentiate polynucleotide sequences of the invention from other polynucleotide sequences in the same family of genes or can differentiate human genes from genes of other species, and are preferably based on unique nucleotide sequences.

The sequences falling within the scope of the present invention are not limited to these specific sequences, but also include allelic and species variations thereof. Allelic and species variations can be routinely determined by comparing the sequence provided in SEQ ID NO: 1-911, or 1823-2478, a representative fragment thereof, or a nucleotide sequence at least 90% identical, preferably 95% identical, to SEQ ID NO: 1-911, or 1823-2478 with a sequence from another isolate of the same species. Furthermore, to accommodate codon variability, the invention includes nucleic acid molecules coding for the same amino acid sequences as do the specific ORFs disclosed herein. In other words, in the coding region of an ORF, substitution of one codon for another codon that encodes the same amino acid is expressly contemplated.

The nearest neighbor or homology results for the nucleic acids of the present invention, including SEQ ID NO: 1-911, or 1823-2478 can be obtained by searching a database using an algorithm or a program. Preferably, a BLAST (Basic Local Alignment Search Tool) program is used to search for local sequence alignments (Altshul, S.F. J Mol. Evol. 36 290-300 (1993) and Altschul S.F. et al. J. Mol. Biol. 21:403-410 (1990)). Alternatively a FASTA version 3 search against Genpept, using FASTXY algorithm may be performed.

Species homologs (or orthologs) of the disclosed polynucleotides and proteins are also provided by the present invention. Species homologs may be isolated and identified by making suitable probes or primers from the sequences provided herein and screening a suitable nucleic acid source from the desired species.

The invention also encompasses allelic variants of the disclosed polynucleotides or proteins; that is, naturally-occurring alternative forms of the isolated polynucleotide which also encode proteins which are identical, homologous or related to that encoded by the polynucleotides.

The nucleic acid sequences of the invention are further directed to sequences which encode variants of the described nucleic acids. These amino acid sequence variants may be prepared by methods known in the art by introducing appropriate nucleotide changes into a native or variant polynucleotide. There are two variables in the construction of amino acid sequence variants: the location of the mutation and the nature of the mutation. Nucleic acids encoding the amino acid sequence variants are preferably constructed by mutating the polynucleotide to encode an amino acid sequence that does not occur in nature. These nucleic acid alterations can be made at sites that differ in the nucleic acids from different species (variable positions) or in highly conserved regions (constant regions). Sites at such locations will typically be modified in series, *e.g.*, by substituting first with conservative choices (*e.g.*, hydrophobic amino acid to a different hydrophobic amino acid) and then with more distant choices (*e.g.*, hydrophobic amino acid to a charged amino acid), and then deletions or insertions may be made at the target site. Amino acid sequence deletions generally range from about 1 to 30 residues, preferably about 1 to 10 residues, and are typically contiguous. Amino acid insertions include amino- and/or carboxyl-terminal fusions ranging in length from one to one hundred or more residues, as well as intrasequence insertions of single or multiple amino acid residues. Intrasequence insertions may range generally from about 1 to 10 amino residues, preferably from 1 to 5 residues. Examples of terminal insertions include the heterologous signal sequences necessary for secretion or for

intracellular targeting in different host cells and sequences such as FLAG or poly-histidine sequences useful for purifying the expressed protein.

In a preferred method, polynucleotides encoding the novel amino acid sequences are changed via site-directed mutagenesis. This method uses oligonucleotide sequences to alter a polynucleotide to encode the desired amino acid variant, as well as sufficient adjacent nucleotides on both sides of the changed amino acid to form a stable duplex on either side of the site of being changed. In general, the techniques of site-directed mutagenesis are well known to those of skill in the art and this technique is exemplified by publications such as, Edelman et al., *DNA* 2:183 (1983). A versatile and efficient method for producing site-specific changes in a polynucleotide sequence was published by Zoller and Smith, *Nucleic Acids Res.* 10:6487-6500 (1982). PCR may also be used to create amino acid sequence variants of the novel nucleic acids. When small amounts of template DNA are used as starting material, primer(s) that differs slightly in sequence from the corresponding region in the template DNA can generate the desired amino acid variant. PCR amplification results in a population of product DNA fragments that differ from the polynucleotide template encoding the polypeptide at the position specified by the primer. The product DNA fragments replace the corresponding region in the plasmid and this gives a polynucleotide encoding the desired amino acid variant.

A further technique for generating amino acid variants is the cassette mutagenesis technique described in Wells et al., *Gene* 34:315 (1985); and other mutagenesis techniques well known in the art, such as, for example, the techniques in Sambrook et al., supra, and *Current Protocols in Molecular Biology*, Ausubel et al. Due to the inherent degeneracy of the genetic code, other DNA sequences which encode substantially the same or a functionally equivalent amino acid sequence may be used in the practice of the invention for the cloning and expression of these novel nucleic acids. Such DNA sequences include those which are capable of hybridizing to the appropriate novel nucleic acid sequence under stringent conditions.

Polynucleotides encoding preferred polypeptide truncations of the invention could be used to generate polynucleotides encoding chimeric or fusion proteins comprising one or more domains of the invention and heterologous protein sequences.

The polynucleotides of the invention additionally include the complement of any of the polynucleotides recited above. The polynucleotide can be DNA (genomic, cDNA, amplified, or synthetic) or RNA. Methods and algorithms for obtaining such

polynucleotides are well known to those of skill in the art and can include, for example, methods for determining hybridization conditions that can routinely isolate polynucleotides of the desired sequence identities.

In accordance with the invention, polynucleotide sequences comprising the mature protein coding sequences corresponding to any one of SEQ ID NO: 1-911, or 1823-2478, or functional equivalents thereof, may be used to generate recombinant DNA molecules that direct the expression of that nucleic acid, or a functional equivalent thereof, in appropriate host cells. Also included are the cDNA inserts of any of the clones identified herein.

A polynucleotide according to the invention can be joined to any of a variety of other nucleotide sequences by well-established recombinant DNA techniques (see Sambrook J et al. (1989) Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Laboratory, NY). Useful nucleotide sequences for joining to polynucleotides include an assortment of vectors, e.g., plasmids, cosmids, lambda phage derivatives, phagemids, and the like, that are well known in the art. Accordingly, the invention also provides a vector including a polynucleotide of the invention and a host cell containing the polynucleotide. In general, the vector contains an origin of replication functional in at least one organism, convenient restriction endonuclease sites, and a selectable marker for the host cell. Vectors according to the invention include expression vectors, replication vectors, probe generation vectors, and sequencing vectors. A host cell according to the invention can be a prokaryotic or eukaryotic cell and can be a unicellular organism or part of a multicellular organism.

The present invention further provides recombinant constructs comprising a nucleic acid having any of the nucleotide sequences of SEQ ID NO: 1-911, or 1823-2478 or a fragment thereof or any other polynucleotides of the invention. In one embodiment, the recombinant constructs of the present invention comprise a vector, such as a plasmid or viral vector, into which a nucleic acid having any of the nucleotide sequences of SEQ ID NO: 1-911, or 1823-2478 or a fragment thereof is inserted, in a forward or reverse orientation. In the case of a vector comprising one of the ORFs of the present invention, the vector may further comprise regulatory sequences, including for example, a promoter, operably linked to the ORF. Large numbers of suitable vectors and promoters are known to those of skill in the art and are commercially available for generating the recombinant constructs of the present invention. The following vectors are provided by way of example: Bacterial: pBs, phagescript, PsiX174, pBluescript SK, pBs KS, pNH8a, pNH16a, pNH18a, pNH46a (Stratagene), pTrc99A, pKK223-3, pKK233-3, pDR540, pRIT5 (Pharmacia); Eukaryotic:

pWLneo, pSV2cat, pOG44, PXTI, pSG (Stratagene) pSVK3, pBPV, pMSG, pSVL (Pharmacia).

The isolated polynucleotide of the invention may be operably linked to an expression control sequence such as the pMT2 or pED expression vectors disclosed in Kaufman et al., *Nucleic Acids Res.* 19, 4485-4490 (1991), in order to produce the protein recombinantly. Many suitable expression control sequences are known in the art. General methods of expressing recombinant proteins are also known and are exemplified in R. Kaufman, *Methods in Enzymology* 185, 537-566 (1990). As defined herein "operably linked" means that the isolated polynucleotide of the invention and an expression control sequence are situated within a vector or cell in such a way that the protein is expressed by a host cell which has been transformed (transfected) with the ligated polynucleotide/expression control sequence.

Promoter regions can be selected from any desired gene using CAT (chloramphenicol transferase) vectors or other vectors with selectable markers. Two appropriate vectors are pKK232-8 and pCM7. Particular named bacterial promoters include lacI, lacZ, T3, T7, gpt, lambda PR, and trc. Eukaryotic promoters include CMV immediate early, HSV thymidine kinase, early and late SV40, LTRs from retrovirus, and mouse metallothionein-I. Selection of the appropriate vector and promoter is well within the level of ordinary skill in the art. Generally, recombinant expression vectors will include origins of replication and selectable markers permitting transformation of the host cell, *e.g.*, the ampicillin resistance gene of *E. coli* and *S. cerevisiae* TRP1 gene, and a promoter derived from a highly expressed gene to direct transcription of a downstream structural sequence. Such promoters can be derived from operons encoding glycolytic enzymes such as 3-phosphoglycerate kinase (PGK), a-factor, acid phosphatase, or heat shock proteins, among others. The heterologous structural sequence is assembled in appropriate phase with translation initiation and termination sequences, and preferably, a leader sequence capable of directing secretion of translated protein into the periplasmic space or extracellular medium. Optionally, the heterologous sequence can encode a fusion protein including an amino terminal identification peptide imparting desired characteristics, *e.g.*, stabilization or simplified purification of expressed recombinant product. Useful expression vectors for bacterial use are constructed by inserting a structural DNA sequence encoding a desired protein together with suitable translation initiation and termination signals in operable reading phase with a functional promoter. The vector will comprise one or more phenotypic

selectable markers and an origin of replication to ensure maintenance of the vector and to, if desirable, provide amplification within the host. Suitable prokaryotic hosts for transformation include *E. coli*, *Bacillus subtilis*, *Salmonella typhimurium* and various species within the genera *Pseudomonas*, *Streptomyces*, and *Staphylococcus*, although others may also be employed as a matter of choice.

As a representative but non-limiting example, useful expression vectors for bacterial use can comprise a selectable marker and bacterial origin of replication derived from commercially available plasmids comprising genetic elements of the well known cloning vector pBR322 (ATCC 37017). Such commercial vectors include, for example, pKK223-3 (Pharmacia Fine Chemicals, Uppsala, Sweden) and GEM 1 (Promega Biotech, Madison, WI, USA). These pBR322 "backbone" sections are combined with an appropriate promoter and the structural sequence to be expressed. Following transformation of a suitable host strain and growth of the host strain to an appropriate cell density, the selected promoter is induced or derepressed by appropriate means (*e.g.*, temperature shift or chemical induction) and cells are cultured for an additional period. Cells are typically harvested by centrifugation, disrupted by physical or chemical means, and the resulting crude extract retained for further purification.

Polynucleotides of the invention can also be used to induce immune responses. For example, as described in Fan et al., Nat. Biotech 17, 870-872 (1999), incorporated herein by reference, nucleic acid sequences encoding a polypeptide may be used to generate antibodies against the encoded polypeptide following topical administration of naked plasmid DNA or following injection, and preferably intra-muscular injection of the DNA. The nucleic acid sequences are preferably inserted in a recombinant expression vector and may be in the form of naked DNA.

4.3 ANTISENSE

Another aspect of the invention pertains to isolated antisense nucleic acid molecules that are hybridizable to or complementary to the nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 1-911, or 1823-2478, or fragments, analogs or derivatives thereof. An "antisense" nucleic acid comprises a nucleotide sequence that is complementary to a "sense" nucleic acid encoding a protein, *e.g.*, complementary to the coding strand of a double-stranded cDNA molecule or complementary to an mRNA sequence. In specific aspects, antisense nucleic acid molecules are provided that comprise a

sequence complementary to at least about 10, 25, 50, 100, 250 or 500 nucleotides or an entire coding strand, or to only a portion thereof. Nucleic acid molecules encoding fragments, homologs, derivatives and analogs of a protein of any of SEQ ID NO: 1-911, or 1823-2478 or antisense nucleic acids complementary to a nucleic acid sequence of SEQ ID NO: 1-911, or 1823-2478 are additionally provided.

In one embodiment, an antisense nucleic acid molecule is antisense to a "coding region" of the coding strand of a nucleotide sequence of the invention. The term "coding region" refers to the region of the nucleotide sequence comprising codons which are translated into amino acid residues. In another embodiment, the antisense nucleic acid molecule is antisense to a "noncoding region" of the coding strand of a nucleotide sequence of the invention. The term "noncoding region" refers to 5' and 3' sequences that flank the coding region that are not translated into amino acids (*i.e.*, also referred to as 5' and 3' untranslated regions).

Given the coding strand sequences encoding a nucleic acid disclosed herein (*e.g.*, SEQ ID NO: 1-911, or 1823-2478, antisense nucleic acids of the invention can be designed according to the rules of Watson and Crick or Hoogsteen base pairing. The antisense nucleic acid molecule can be complementary to the entire coding region of an mRNA, but more preferably is an oligonucleotide that is antisense to only a portion of the coding or noncoding region of an mRNA. For example, the antisense oligonucleotide can be complementary to the region surrounding the translation start site of an mRNA. An antisense oligonucleotide can be, for example, about 5, 10, 15, 20, 25, 30, 35, 40, 45 or 50 nucleotides in length. An antisense nucleic acid of the invention can be constructed using chemical synthesis or enzymatic ligation reactions using procedures known in the art. For example, an antisense nucleic acid (*e.g.*, an antisense oligonucleotide) can be chemically synthesized using naturally occurring nucleotides or variously modified nucleotides designed to increase the biological stability of the molecules or to increase the physical stability of the duplex formed between the antisense and sense nucleic acids, *e.g.*, phosphorothioate derivatives and acridine substituted nucleotides can be used.

Examples of modified nucleotides that can be used to generate the antisense nucleic acid include: 5-fluorouracil, 5-bromouracil, 5-chlorouracil, 5-iodouracil, hypoxanthine, xanthine, 4-acetylcytosine, 5-(carboxyhydroxylmethyl) uracil, 5-carboxymethylaminomethyl-2-thiouridine, 5-carboxymethylaminomethyluracil, dihydrouracil, beta-D-galactosylqueosine, inosine, N6-isopentenyladenine, 1-methylguanine,

1-methylinosine, 2,2-dimethylguanine, 2-methyladenine, 2-methylguanine, 3-methylcytosine, 5-methylcytosine, N6-adenine, 7-methylguanine, 5-methylaminomethyluracil, 5-methoxyaminomethyl-2-thiouracil, beta-D-mannosylqueosine, 5'-methoxycarboxymethyluracil, 5-methoxyuracil, 2-methylthio-N6-isopentenyladenine, uracil-5-oxyacetic acid (v), wybutoxosine, pseudouracil, queosine, 2-thiocytosine, 5-methyl-2-thiouracil, 2-thiouracil, 4-thiouracil, 5-methyluracil, uracil-5-oxyacetic acid methylester, uracil-5-oxyacetic acid (v), 5-methyl-2-thiouracil, 3-(3-amino-3-N-2-carboxypropyl) uracil, (acp3)w, and 2,6-diaminopurine. Alternatively, the antisense nucleic acid can be produced biologically using an expression vector into which a nucleic acid has been subcloned in an antisense orientation (*i.e.*, RNA transcribed from the inserted nucleic acid will be of an antisense orientation to a target nucleic acid of interest, described further in the following subsection).

The antisense nucleic acid molecules of the invention are typically administered to a subject or generated *in situ* such that they hybridize with or bind to cellular mRNA and/or genomic DNA encoding a protein according to the invention to thereby inhibit expression of the protein, *e.g.*, by inhibiting transcription and/or translation. The hybridization can be by conventional nucleotide complementarity to form a stable duplex, or, for example, in the case of an antisense nucleic acid molecule that binds to DNA duplexes, through specific interactions in the major groove of the double helix. An example of a route of administration of antisense nucleic acid molecules of the invention includes direct injection at a tissue site. Alternatively, antisense nucleic acid molecules can be modified to target selected cells and then administered systemically. For example, for systemic administration, antisense molecules can be modified such that they specifically bind to receptors or antigens expressed on a selected cell surface, *e.g.*, by linking the antisense nucleic acid molecules to peptides or antibodies that bind to cell surface receptors or antigens. The antisense nucleic acid molecules can also be delivered to cells using the vectors described herein. To achieve sufficient intracellular concentrations of antisense molecules, vector constructs in which the antisense nucleic acid molecule is placed under the control of a strong pol II or pol III promoter are preferred.

In yet another embodiment, the antisense nucleic acid molecule of the invention is an α-anomeric nucleic acid molecule. An α-anomeric nucleic acid molecule forms specific double-stranded hybrids with complementary RNA in which, contrary to the usual α-units, the strands run parallel to each other (Gaultier *et al.* (1987) *Nucleic Acids Res* 15:

6625-6641). The antisense nucleic acid molecule can also comprise a 2'-o-methylribonucleotide (Inoue *et al.* (1987) *Nucleic Acids Res* 15: 6131-6148) or a chimeric RNA -DNA analogue (Inoue *et al.* (1987) *FEBS Lett* 215: 327-330).

4.4 RIBOZYMES AND PNA MOIETIES

In still another embodiment, an antisense nucleic acid of the invention is a ribozyme. Ribozymes are catalytic RNA molecules with ribonuclease activity that are capable of cleaving a single-stranded nucleic acid, such as an mRNA, to which they have a complementary region. Thus, ribozymes (*e.g.*, hammerhead ribozymes (described in Haselhoff and Gerlach (1988) *Nature* 334:585-591)) can be used to catalytically cleave mRNA transcripts to thereby inhibit translation of an mRNA. A ribozyme having specificity for a nucleic acid of the invention can be designed based upon the nucleotide sequence of a DNA disclosed herein (*i.e.*, SEQ ID NO: 1-911, or 1823-2478). For example, a derivative of Tetrahymena L-19 IVS RNA can be constructed in which the nucleotide sequence of the active site is complementary to the nucleotide sequence to be cleaved in a mRNA. See, *e.g.*, Cech *et al.* U.S. Pat. No. 4,987,071; and Cech *et al.* U.S. Pat. No. 5,116,742. Alternatively, mRNA of the invention can be used to select a catalytic RNA having a specific ribonuclease activity from a pool of RNA molecules. See, *e.g.*, Bartel *et al.*, (1993) *Science* 261:1411-1418.

Alternatively, gene expression can be inhibited by targeting nucleotide sequences complementary to the regulatory region (*e.g.*, promoter and/or enhancers) to form triple helical structures that prevent transcription of the gene in target cells. See generally, Helene. (1991) *Anticancer Drug Des.* 6: 569-84; Helene. *et al.* (1992) *Ann. N.Y. Acad. Sci.* 660:27-36; and Maher (1992) *Bioassays* 14: 807-15.

In various embodiments, the nucleic acids of the invention can be modified at the base moiety, sugar moiety or phosphate backbone to improve, *e.g.*, the stability, hybridization, or solubility of the molecule. For example, the deoxyribose phosphate backbone of the nucleic acids can be modified to generate peptide nucleic acids (see Hyrup *et al.* (1996) *Bioorg Med Chem* 4: 5-23). As used herein, the terms "peptide nucleic acids" or "PNAs" refer to nucleic acid mimics, *e.g.*, DNA mimics, in which the deoxyribose phosphate backbone is replaced by a pseudopeptide backbone and only the four natural nucleobases are retained. The neutral backbone of PNAs has been shown to allow for specific hybridization to DNA and RNA under conditions of low ionic strength. The

synthesis of PNA oligomers can be performed using standard solid phase peptide synthesis protocols as described in Hyrup *et al.* (1996) above; Perry-O'Keefe *et al.* (1996) *PNAS* 93: 14670-675.

PNAs of the invention can be used in therapeutic and diagnostic applications. For example, PNAs can be used as antisense or antigene agents for sequence-specific modulation of gene expression by, *e.g.*, inducing transcription or translation arrest or inhibiting replication. PNAs of the invention can also be used, *e.g.*, in the analysis of single base pair mutations in a gene by, *e.g.*, PNA directed PCR clamping; as artificial restriction enzymes when used in combination with other enzymes, *e.g.*, S1 nucleases (Hyrup B. (1996) above); or as probes or primers for DNA sequence and hybridization (Hyrup *et al.* (1996), above; Perry-O'Keefe (1996), above).

In another embodiment, PNAs of the invention can be modified, *e.g.*, to enhance their stability or cellular uptake, by attaching lipophilic or other helper groups to PNA, by the formation of PNA-DNA chimeras, or by the use of liposomes or other techniques of drug delivery known in the art. For example, PNA-DNA chimeras can be generated that may combine the advantageous properties of PNA and DNA. Such chimeras allow DNA recognition enzymes, *e.g.*, RNase H and DNA polymerases, to interact with the DNA portion while the PNA portion would provide high binding affinity and specificity. PNA-DNA chimeras can be linked using linkers of appropriate lengths selected in terms of base stacking, number of bonds between the nucleobases, and orientation (Hyrup (1996) above). The synthesis of PNA-DNA chimeras can be performed as described in Hyrup (1996) above and Finn *et al.* (1996) *Nucl Acids Res* 24: 3357-63. For example, a DNA chain can be synthesized on a solid support using standard phosphoramidite coupling chemistry, and modified nucleoside analogs, *e.g.*, 5'-(4-methoxytrityl)amino-5'-deoxy-thymidine phosphoramidite, can be used between the PNA and the 5' end of DNA (Mag *et al.* (1989) *Nucl Acid Res* 17: 5973-88). PNA monomers are then coupled in a stepwise manner to produce a chimeric molecule with a 5' PNA segment and a 3' DNA segment (Finn *et al.* (1996) above). Alternatively, chimeric molecules can be synthesized with a 5' DNA segment and a 3' PNA segment. See, Petersen *et al.* (1975) *Bioorg Med Chem Lett* 5: 1119-11124.

In other embodiments, the oligonucleotide may include other appended groups such as peptides (*e.g.*, for targeting host cell receptors *in vivo*), or agents facilitating transport across the cell membrane (see, *e.g.*, Letsinger *et al.*, 1989, *Proc. Natl. Acad. Sci. U.S.A.*

86:6553-6556; Lemaitre *et al.*, 1987, Proc. *Natl. Acad. Sci.* 84:648-652; PCT Publication No. W088/09810) or the blood-brain barrier (see, *e.g.*, PCT Publication No. W089/10134). In addition, oligonucleotides can be modified with hybridization triggered cleavage agents (See, *e.g.*, Krol *et al.*, 1988, *BioTechniques* 6:958-976) or intercalating agents. (See, *e.g.*, Zon, 1988, *Pharm. Res.* 5: 539-549). To this end, the oligonucleotide may be conjugated to another molecule, *e.g.*, a peptide, a hybridization triggered cross-linking agent, a transport agent, a hybridization-triggered cleavage agent, etc.

4.5 HOSTS

The present invention further provides host cells genetically engineered to contain the polynucleotides of the invention. For example, such host cells may contain nucleic acids of the invention introduced into the host cell using known transformation, transfection or infection methods. The present invention still further provides host cells genetically engineered to express the polynucleotides of the invention, wherein such polynucleotides are in operative association with a regulatory sequence heterologous to the host cell which drives expression of the polynucleotides in the cell.

Knowledge of nucleic acid sequences allows for modification of cells to permit, or increase, expression of endogenous polypeptide. Cells can be modified (e.g., by homologous recombination) to provide increased polypeptide expression by replacing, in whole or in part, the naturally occurring promoter with all or part of a heterologous promoter so that the cells express the polypeptide at higher levels. The heterologous promoter is inserted in such a manner that it is operatively linked to the encoding sequences. See, for example, PCT International Publication No. WO94/12650, PCT International Publication No. WO92/20808, and PCT International Publication No. WO91/09955. It is also contemplated that, in addition to heterologous promoter DNA, amplifiable marker DNA (e.g., ada, dhfr, and the multifunctional CAD gene which encodes carbamyl phosphate synthase, aspartate transcarbamylase, and dihydroorotase) and/or intron DNA may be inserted along with the heterologous promoter DNA. If linked to the coding sequence, amplification of the marker DNA by standard selection methods results in co-amplification of the desired protein coding sequences in the cells.

The host cell can be a higher eukaryotic host cell, such as a mammalian cell, a lower eukaryotic host cell, such as a yeast cell, or the host cell can be a prokaryotic cell, such as a bacterial cell. Introduction of the recombinant construct into the host cell can be effected by

calcium phosphate transfection, DEAE, dextran mediated transfection, or electroporation (Davis, L. et al., *Basic Methods in Molecular Biology* (1986)). The host cells containing one of the polynucleotides of the invention, can be used in conventional manners to produce the gene product encoded by the isolated fragment (in the case of an ORF) or can be used to produce a heterologous protein under the control of the EMF.

Any host/vector system can be used to express one or more of the ORFs of the present invention. These include, but are not limited to, eukaryotic hosts such as HeLa cells, Cv-1 cell, COS cells, 293 cells, and Sf9 cells, as well as prokaryotic host such as *E. coli* and *B. subtilis*. The most preferred cells are those which do not normally express the particular polypeptide or protein or which expresses the polypeptide or protein at low natural level. Mature proteins can be expressed in mammalian cells, yeast, bacteria, or other cells under the control of appropriate promoters. Cell-free translation systems can also be employed to produce such proteins using RNAs derived from the DNA constructs of the present invention. Appropriate cloning and expression vectors for use with prokaryotic and eukaryotic hosts are described by Sambrook, et al., in Molecular Cloning: A Laboratory Manual, Second Edition, Cold Spring Harbor, New York (1989), the disclosure of which is hereby incorporated by reference.

Various mammalian cell culture systems can also be employed to express recombinant protein. Examples of mammalian expression systems include the COS-7 lines of monkey kidney fibroblasts, described by Gluzman, Cell 23:175 (1981). Other cell lines capable of expressing a compatible vector are, for example, the C127, monkey COS cells, Chinese Hamster Ovary (CHO) cells, human kidney 293 cells, human epidermal A431 cells, human Colo205 cells, 3T3 cells, CV-1 cells, other transformed primate cell lines, normal diploid cells, cell strains derived from *in vitro* culture of primary tissue, primary explants, HeLa cells, mouse L cells, BHK, HL-60, U937, HaK or Jurkat cells. Mammalian expression vectors will comprise an origin of replication, a suitable promoter and also any necessary ribosome binding sites, polyadenylation site, splice donor and acceptor sites, transcriptional termination sequences, and 5′ flanking nontranscribed sequences. DNA sequences derived from the SV40 viral genome, for example, SV40 origin, early promoter, enhancer, splice, and polyadenylation sites may be used to provide the required nontranscribed genetic elements. Recombinant polypeptides and proteins produced in bacterial culture are usually isolated by initial extraction from cell pellets, followed by one or more salting-out, aqueous ion exchange or size exclusion chromatography steps. Protein refolding steps can be used,

as necessary, in completing configuration of the mature protein. Finally, high performance liquid chromatography (HPLC) can be employed for final purification steps. Microbial cells employed in expression of proteins can be disrupted by any convenient method, including freeze-thaw cycling, sonication, mechanical disruption, or use of cell lysing agents.

Alternatively, it may be possible to produce the protein in lower eukaryotes such as yeast or insects or in prokaryotes such as bacteria. Potentially suitable yeast strains include *Saccharomyces cerevisiae*, *Schizosaccharomyces pombe*, *Kluyveromyces* strains, *Candida*, or any yeast strain capable of expressing heterologous proteins. Potentially suitable bacterial strains include *Escherichia coli*, *Bacillus subtilis*, *Salmonella typhimurium*, or any bacterial strain capable of expressing heterologous proteins. If the protein is made in yeast or bacteria, it may be necessary to modify the protein produced therein, for example by phosphorylation or glycosylation of the appropriate sites, in order to obtain the functional protein. Such covalent attachments may be accomplished using known chemical or enzymatic methods.

In another embodiment of the present invention, cells and tissues may be engineered to express an endogenous gene comprising the polynucleotides of the invention under the control of inducible regulatory elements, in which case the regulatory sequences of the endogenous gene may be replaced by homologous recombination. As described herein, gene targeting can be used to replace a gene's existing regulatory region with a regulatory sequence isolated from a different gene or a novel regulatory sequence synthesized by genetic engineering methods. Such regulatory sequences may be comprised of promoters, enhancers, scaffold-attachment regions, negative regulatory elements, transcriptional initiation sites, and regulatory protein binding sites or combinations of said sequences. Alternatively, sequences which affect the structure or stability of the RNA or protein produced may be replaced, removed, added, or otherwise modified by targeting. These sequence include polyadenylation signals, mRNA stability elements, splice sites, leader sequences for enhancing or modifying transport or secretion properties of the protein, or other sequences which alter or improve the function or stability of protein or RNA molecules.

The targeting event may be a simple insertion of the regulatory sequence, placing the gene under the control of the new regulatory sequence, *e.g.*, inserting a new promoter or enhancer or both upstream of a gene. Alternatively, the targeting event may be a simple deletion of a regulatory element, such as the deletion of a tissue-specific negative regulatory

element. Alternatively, the targeting event may replace an existing element; for example, a tissue-specific enhancer can be replaced by an enhancer that has broader or different cell-type specificity than the naturally occurring elements. Here, the naturally occurring sequences are deleted and new sequences are added. In all cases, the identification of the targeting event may be facilitated by the use of one or more selectable marker genes that are contiguous with the targeting DNA, allowing for the selection of cells in which the exogenous DNA has integrated into the host cell genome. The identification of the targeting event may also be facilitated by the use of one or more marker genes exhibiting the property of negative selection, such that the negatively selectable marker is linked to the exogenous DNA, but configured such that the negatively selectable marker flanks the targeting sequence, and such that a correct homologous recombination event with sequences in the host cell genome does not result in the stable integration of the negatively selectable marker. Markers useful for this purpose include the Herpes Simplex Virus thymidine kinase (TK) gene or the bacterial xanthine-guanine phosphoribosyl-transferase (gpt) gene.

The gene targeting or gene activation techniques which can be used in accordance with this aspect of the invention are more particularly described in U.S. Patent No. 5,272,071 to Chappel; U.S. Patent No. 5,578,461 to Sherwin et al.; International Application No. PCT/US92/09627 (WO93/09222) by Selden et al.; and International Application No. PCT/US90/06436 (WO91/06667) by Skoultchi et al., each of which is incorporated by reference herein in its entirety.

4.6 POLYPEPTIDES OF THE INVENTION

The isolated polypeptides of the invention include, but are not limited to, a polypeptide comprising: the amino acid sequences set forth as any one of SEQ ID NO: 912-1822, or 2479-3134 or an amino acid sequence encoded by any one of the nucleotide sequences SEQ ID NO: 1-911, or 1823-2478 or the corresponding full length or mature protein. Polypeptides of the invention also include polypeptides preferably with biological or immunological activity that are encoded by: (a) a polynucleotide having any one of the nucleotide sequences set forth in SEQ ID NO: 1-911, or 1823-2478 or (b) polynucleotides encoding any one of the amino acid sequences set forth as SEQ ID NO: 912-1822, or 2479-3134 or (c) polynucleotides that hybridize to the complement of the polynucleotides of either (a) or (b) under stringent hybridization conditions. The invention also provides biologically active or immunologically active variants of any of the amino acid sequences set forth as

SEQ ID NO: 912-1822, or 2479-3134 or the corresponding full length or mature protein; and "substantial equivalents" thereof (e.g., with at least about 65%, at least about 70%, at least about 75%, at least about 80%, at least about 85%, 86%, 87%, 88%, 89%, at least about 90%, 91%, 92%, 93%, 94%, typically at least about 95%, 96%, 97%, more typically at least about 98%, or most typically at least about 99% amino acid identity) that retain biological activity. Polypeptides encoded by allelic variants may have a similar, increased, or decreased activity compared to polypeptides comprising SEQ ID NO: 912-1822, or 2479-3134.

Fragments of the proteins of the present invention which are capable of exhibiting biological activity are also encompassed by the present invention. Fragments of the protein may be in linear form or they may be cyclized using known methods, for example, as described in H. U. Saragovi, et al., Bio/Technology 10, 773-778 (1992) and in R. S. McDowell, et al., J. Amer. Chem. Soc. 114, 9245-9253 (1992), both of which are incorporated herein by reference. Such fragments may be fused to carrier molecules such as immunoglobulins for many purposes, including increasing the valency of protein binding sites. Fragments are also identified in Tables 3A, 3B, 5, or 6.

The present invention also provides both full-length and mature forms (for example, without a signal sequence or precursor sequence) of the disclosed proteins. The protein coding sequence is identified in the sequence listing by translation of the disclosed nucleotide sequences. The predicted signal sequence is set forth in Table 6. The mature form of such protein may be obtained and confirmed by expression of a full-length polynucleotide in a suitable mammalian cell or other host cell and sequencing of the cleaved product. One of skill in the art will recognize that the actual cleavage site may be different than that predicted in Table 6. The sequence of the mature form of the protein is also determinable from the amino acid sequence of the full-length form. Where proteins of the present invention are membrane bound, soluble forms of the proteins are also provided. In such forms, part or all of the regions causing the proteins to be membrane bound are deleted so that the proteins are fully secreted from the cell in which they are expressed (See, e.g., Sakal et al., Prep. Biochem. Biotechnol. (2000), 30(2), pp. 107-23, incorporated herein by reference).

Protein compositions of the present invention may further comprise an acceptable carrier, such as a hydrophilic, *e.g.*, pharmaceutically acceptable, carrier.

The present invention further provides isolated polypeptides encoded by the nucleic acid fragments of the present invention or by degenerate variants of the nucleic acid fragments of the present invention. By "degenerate variant" is intended nucleotide fragments which differ from a nucleic acid fragment of the present invention (*e.g.*, an ORF) by nucleotide sequence but, due to the degeneracy of the genetic code, encode an identical polypeptide sequence. Preferred nucleic acid fragments of the present invention are the ORFs that encode proteins.

A variety of methodologies known in the art can be utilized to obtain any one of the isolated polypeptides or proteins of the present invention. At the simplest level, the amino acid sequence can be synthesized using commercially available peptide synthesizers. The synthetically-constructed protein sequences, by virtue of sharing primary, secondary or tertiary structural and/or conformational characteristics with proteins may possess biological properties in common therewith, including protein activity. This technique is particularly useful in producing small peptides and fragments of larger polypeptides. Fragments are useful, for example, in generating antibodies against the native polypeptide. Thus, they may be employed as biologically active or immunological substitutes for natural, purified proteins in screening of therapeutic compounds and in immunological processes for the development of antibodies.

The polypeptides and proteins of the present invention can alternatively be purified from cells which have been altered to express the desired polypeptide or protein. As used herein, a cell is said to be altered to express a desired polypeptide or protein when the cell, through genetic manipulation, is made to produce a polypeptide or protein which it normally does not produce or which the cell normally produces at a lower level. One skilled in the art can readily adapt procedures for introducing and expressing either recombinant or synthetic sequences into eukaryotic or prokaryotic cells in order to generate a cell which produces one of the polypeptides or proteins of the present invention.

The invention also relates to methods for producing a polypeptide comprising growing a culture of host cells of the invention in a suitable culture medium, and purifying the protein from the cells or the culture in which the cells are grown. For example, the methods of the invention include a process for producing a polypeptide in which a host cell containing a suitable expression vector that includes a polynucleotide of the invention is cultured under conditions that allow expression of the encoded polypeptide. The polypeptide can be recovered from the culture, conveniently from the culture medium, or

from a lysate prepared from the host cells and further purified. Preferred embodiments include those in which the protein produced by such process is a full length or mature form of the protein.

In an alternative method, the polypeptide or protein is purified from bacterial cells which naturally produce the polypeptide or protein. One skilled in the art can readily follow known methods for isolating polypeptides and proteins in order to obtain one of the isolated polypeptides or proteins of the present invention. These include, but are not limited to, immunochromatography, HPLC, size-exclusion chromatography, ion-exchange chromatography, and immuno-affinity chromatography. See, *e.g.*, Scopes, *Protein Purification: Principles and Practice*, Springer-Verlag (1994); Sambrook, et al., in Molecular Cloning: *A Laboratory Manual*; Ausubel et al., *Current Protocols in Molecular Biology*. Polypeptide fragments that retain biological/immunological activity include fragments comprising greater than about 100 amino acids, or greater than about 200 amino acids, and fragments that encode specific protein domains.

The purified polypeptides can be used in *in vitro* binding assays which are well known in the art to identify molecules which bind to the polypeptides. These molecules include but are not limited to, for e.g., small molecules, molecules from combinatorial libraries, antibodies or other proteins. The molecules identified in the binding assay are then tested for antagonist or agonist activity in *in vivo* tissue culture or animal models that are well known in the art. In brief, the molecules are titrated into a plurality of cell cultures or animals and then tested for either cell/animal death or prolonged survival of the animal/cells.

In addition, the peptides of the invention or molecules capable of binding to the peptides may be complexed with toxins, e.g., ricin or cholera, or with other compounds that are toxic to cells. The toxin-binding molecule complex is then targeted to a tumor or other cell by the specificity of the binding molecule for SEQ ID NO: 912-1822, or 2479-3134.

The protein of the invention may also be expressed as a product of transgenic animals, *e.g.*, as a component of the milk of transgenic cows, goats, pigs, or sheep which are characterized by somatic or germ cells containing a nucleotide sequence encoding the protein.

The proteins provided herein also include proteins characterized by amino acid sequences similar to those of purified proteins but into which modification are naturally provided or deliberately engineered. For example, modifications, in the peptide or DNA sequence, can be made by those skilled in the art using known techniques. Modifications of

interest in the protein sequences may include the alteration, substitution, replacement, insertion or deletion of a selected amino acid residue in the coding sequence. For example, one or more of the cysteine residues may be deleted or replaced with another amino acid to alter the conformation of the molecule. Techniques for such alteration, substitution, replacement, insertion or deletion are well known to those skilled in the art (see, *e.g.*, U.S. Pat. No. 4,518,584). Preferably, such alteration, substitution, replacement, insertion or deletion retains the desired activity of the protein. Regions of the protein that are important for the protein function can be determined by various methods known in the art including the alanine-scanning method which involved systematic substitution of single or strings of amino acids with alanine, followed by testing the resulting alanine-containing variant for biological activity. This type of analysis determines the importance of the substituted amino acid(s) in biological activity. Regions of the protein that are important for protein function may be determined by the eMATRIX program.

Other fragments and derivatives of the sequences of proteins which would be expected to retain protein activity in whole or in part and are useful for screening or other immunological methodologies may also be easily made by those skilled in the art given the disclosures herein. Such modifications are encompassed by the present invention.

The protein may also be produced by operably linking the isolated polynucleotide of the invention to suitable control sequences in one or more insect expression vectors, and employing an insect expression system. Materials and methods for baculovirus/insect cell expression systems are commercially available in kit form from, *e.g.*, Invitrogen, San Diego, Calif., U.S.A. (the MaxBac™ kit), and such methods are well known in the art, as described in Summers and Smith, Texas Agricultural Experiment Station Bulletin No. 1555 (1987), incorporated herein by reference. As used herein, an insect cell capable of expressing a polynucleotide of the present invention is "transformed."

The protein of the invention may be prepared by culturing transformed host cells under culture conditions suitable to express the recombinant protein. The resulting expressed protein may then be purified from such culture (*i.e.*, from culture medium or cell extracts) using known purification processes, such as gel filtration and ion exchange chromatography. The purification of the protein may also include an affinity column containing agents which will bind to the protein; one or more column steps over such affinity resins as concanavalin A-agarose, heparin-toyopearl™ or Cibacrom blue 3GA Sepharose™;

one or more steps involving hydrophobic interaction chromatography using such resins as phenyl ether, butyl ether, or propyl ether; or immunoaffinity chromatography.

Alternatively, the protein of the invention may also be expressed in a form which will facilitate purification. For example, it may be expressed as a fusion protein, such as those of maltose binding protein (MBP), glutathione-S-transferase (GST) or thioredoxin (TRX), or as a His tag. Kits for expression and purification of such fusion proteins are commercially available from New England BioLab (Beverly, Mass.), Pharmacia (Piscataway, N.J.) and Invitrogen, respectively. The protein can also be tagged with an epitope and subsequently purified by using a specific antibody directed to such epitope. One such epitope ("FLAG®") is commercially available from Kodak (New Haven, Conn.).

Finally, one or more reverse-phase high performance liquid chromatography (RP-HPLC) steps employing hydrophobic RP-HPLC media, *e.g.*, silica gel having pendant methyl or other aliphatic groups, can be employed to further purify the protein. Some or all of the foregoing purification steps, in various combinations, can also be employed to provide a substantially homogeneous isolated recombinant protein. The protein thus purified is substantially free of other mammalian proteins and is defined in accordance with the present invention as an "isolated protein."

The polypeptides of the invention include analogs (variants). This embraces fragments, as well as peptides in which one or more amino acids has been deleted, inserted, or substituted. Also, analogs of the polypeptides of the invention embrace fusions of the polypeptides or modifications of the polypeptides of the invention, wherein the polypeptide or analog is fused to another moiety or moieties, e.g., targeting moiety or another therapeutic agent. Such analogs may exhibit improved properties such as activity and/or stability. Examples of moieties which may be fused to the polypeptide or an analog include, for example, targeting moieties which provide for the delivery of polypeptide to pancreatic cells, e.g., antibodies to pancreatic cells, antibodies to immune cells such as T-cells, monocytes, dendritic cells, granulocytes, etc., as well as receptor and ligands expressed on pancreatic or immune cells. Other moieties which may be fused to the polypeptide include therapeutic agents which are used for treatment, for example, immunosuppressive drugs such as cyclosporin, SK506, azathioprine, CD3 antibodies and steroids. Also, polypeptides may be fused to immune modulators, and other cytokines such as alpha or beta interferon.

4.6.1 DETERMINING POLYPEPTIDE AND POLYNUCLEOTIDE IDENTITY AND SIMILARITY

Preferred identity and/or similarity are designed to give the largest match between the sequences tested. Methods to determine identity and similarity are codified in computer programs including, but are not limited to, the GCG program package, including GAP (Devereux, J., et al., Nucleic Acids Research 12(1):387 (1984); Genetics Computer Group, University of Wisconsin, Madison, WI), BLASTP, BLASTN, BLASTX, FASTA (Altschul, S.F. et al., J. Molec. Biol. 215:403-410 (1990), PSI-BLAST (Altschul S.F. et al., Nucleic Acids Res. vol. 25, pp. 3389-3402, herein incorporated by reference), eMatrix software (Wu et al., J. Comp. Biol., Vol. 6, pp. 219-235 (1999), herein incorporated by reference), eMotif software (Nevill-Manning et al, ISMB-97, Vol. 4, pp. 202-209, herein incorporated by reference), Pfam software (Sonnhammer et al., Nucleic Acids Res., Vol. 26(1), pp. 320-322 (1998), herein incorporated by reference) and the Kyte-Doolittle hydrophobocity prediction algorithm (J. Mol Biol, 157, pp. 105-31 (1982), the GeneAtlas software (Molecular Simulations Inc. (MSI), San Diego, CA) (Sanchez and Sali (1998) Proc. Natl. Acad. Sci., 95, 13597-13602; Kitson DH et al, (2000) "Remote homology detection using structural modeling – an evaluation" Submitted; Fischer and Eisenberg (1996) Protein Sci. 5, 947-955), Neural Network SignalP V1.1 program (from Center for Biological Sequence Analysis, The Technical University of Denmark) incorporated herein by reference). Polypeptide sequences were examined by a proprietary algorithm, SeqLoc that separates the proteins into three sets of locales: intracellular, membrane, or secreted. This prediction is based upon three characteristics of each polypeptide, including percentage of cysteine residues, Kyte-Doolittle scores for the first 20 amino acids of each protein, and Kyte-Doolittle scores to calculate the longest hydrophobic stretch of the said protein. Values of predicted proteins are compared against the values from a set of 592 proteins of known cellular localization from the Swissprot database (http://www.expasy.ch/sprot). Predictions are based upon the maximum likelihood estimation.

Pesence of transmembrane region(s) was detected using the TMpred program (http://www.ch.embnet.org/software/TMPRED_form.html).

The BLAST programs are publicly available from the National Center for Biotechnology Information (NCBI) and other sources (BLAST Manual, Altschul, S., et al. NCBI NLM NIH Bethesda, MD 20894; Altschul, S., et al., J. Mol. Biol. 215:403-410 (1990).

4.7 CHIMERIC AND FUSION PROTEINS

The invention also provides chimeric or fusion proteins. As used herein, a "chimeric protein" or "fusion protein" comprises a polypeptide of the invention operatively linked to another polypeptide. Within a fusion protein the polypeptide according to the invention can correspond to all or a portion of a protein according to the invention. In one embodiment, a fusion protein comprises at least one biologically active portion of a protein according to the invention. In another embodiment, a fusion protein comprises at least two biologically active portions of a protein according to the invention. Within the fusion protein, the term "operatively linked" is intended to indicate that the polypeptide according to the invention and the other polypeptide are fused in-frame to each other. The polypeptide can be fused to the N-terminus or C-terminus, or to the middle.

For example, in one embodiment a fusion protein comprises a polypeptide according to the invention operably linked to the extracellular domain of a second protein.

In another embodiment, the fusion protein is a GST-fusion protein in which the polypeptide sequences of the invention are fused to the C-terminus of the GST (i.e., glutathione S-transferase) sequences.

In another embodiment, the fusion protein is an immunoglobulin fusion protein in which the polypeptide sequences according to the invention comprise one or more domains fused to sequences derived from a member of the immunoglobulin protein family. The immunoglobulin fusion proteins of the invention can be incorporated into pharmaceutical compositions and administered to a subject to inhibit an interaction between a ligand and a protein of the invention on the surface of a cell, to thereby suppress signal transduction *in vivo*. The immunoglobulin fusion proteins can be used to affect the bioavailability of a cognate ligand. Inhibition of the ligand/protein interaction may be useful therapeutically for both the treatment of proliferative and differentiative disorders, *e.g.*, cancer as well as modulating (*e.g.*, promoting or inhibiting) cell survival. Moreover, the immunoglobulin fusion proteins of the invention can be used as immunogens to produce antibodies in a subject, to purify ligands, and in screening assays to identify molecules that inhibit the interaction of a polypeptide of the invention with a ligand.

A chimeric or fusion protein of the invention can be produced by standard recombinant DNA techniques. For example, DNA fragments coding for the different polypeptide sequences are ligated together in-frame in accordance with conventional techniques, *e.g.*, by employing blunt-ended or stagger-ended termini for ligation, restriction enzyme digestion to provide for appropriate termini, filling-in of cohesive ends as

appropriate, alkaline phosphatase treatment to avoid undesirable joining, and enzymatic ligation. In another embodiment, the fusion gene can be synthesized by conventional techniques including automated DNA synthesizers. Alternatively, PCR amplification of gene fragments can be carried out using anchor primers that give rise to complementary overhangs between two consecutive gene fragments that can subsequently be annealed and reamplified to generate a chimeric gene sequence (see, for example, Ausubel et al. (eds.) CURRENT PROTOCOLS IN MOLECULAR BIOLOGY, John Wiley & Sons, 1992). Moreover, many expression vectors are commercially available that already encode a fusion moiety (*e.g.*, a GST polypeptide). A nucleic acid encoding a polypeptide of the invention can be cloned into such an expression vector such that the fusion moiety is linked in-frame to the protein of the invention.

4.8 GENE THERAPY

Mutations in the polynucleotides of the invention gene may result in loss of normal function of the encoded protein. The invention thus provides gene therapy to restore normal activity of the polypeptides of the invention; or to treat disease states involving polypeptides of the invention. Delivery of a functional gene encoding polypeptides of the invention to appropriate cells is effected *ex vivo*, *in situ*, or *in vivo* by use of vectors, and more particularly viral vectors (e.g., adenovirus, adeno-associated virus, or a retrovirus), or *ex vivo* by use of physical DNA transfer methods (e.g., liposomes or chemical treatments). See, for example, Anderson, Nature, supplement to vol. 392, no. 6679, pp.25-20 (1998). For additional reviews of gene therapy technology see Friedmann, Science, 244: 1275-1281 (1989); Verma, Scientific American: 68-84 (1990); and Miller, Nature, 357: 455-460 (1992). Introduction of any one of the nucleotides of the present invention or a gene encoding the polypeptides of the present invention can also be accomplished with extrachromosomal substrates (transient expression) or artificial chromosomes (stable expression). Cells may also be cultured *ex vivo* in the presence of proteins of the present invention in order to proliferate or to produce a desired effect on or activity in such cells. Treated cells can then be introduced *in vivo* for therapeutic purposes. Alternatively, it is contemplated that in other human disease states, preventing the expression of or inhibiting the activity of polypeptides of the invention will be useful in treating the disease states. It is contemplated that antisense therapy or gene therapy could be applied to negatively regulate the expression of polypeptides of the invention.

Other methods inhibiting expression of a protein include the introduction of antisense molecules to the nucleic acids of the present invention, their complements, or their translated RNA sequences, by methods known in the art. Further, the polypeptides of the present invention can be inhibited by using targeted deletion methods, or the insertion of a negative regulatory element such as a silencer, which is tissue specific.

The present invention still further provides cells genetically engineered *in vivo* to express the polynucleotides of the invention, wherein such polynucleotides are in operative association with a regulatory sequence heterologous to the host cell which drives expression of the polynucleotides in the cell. These methods can be used to increase or decrease the expression of the polynucleotides of the present invention.

Knowledge of DNA sequences provided by the invention allows for modification of cells to permit, increase, or decrease, expression of endogenous polypeptide. Cells can be modified (e.g., by homologous recombination) to provide increased polypeptide expression by replacing, in whole or in part, the naturally occurring promoter with all or part of a heterologous promoter so that the cells express the protein at higher levels. The heterologous promoter is inserted in such a manner that it is operatively linked to the desired protein encoding sequences. See, for example, PCT International Publication No. WO 94/12650, PCT International Publication No. WO 92/20808, and PCT International Publication No. WO 91/09955. It is also contemplated that, in addition to heterologous promoter DNA, amplifiable marker DNA (e.g., ada, dhfr, and the multifunctional CAD gene which encodes carbamyl phosphate synthase, aspartate transcarbamylase, and dihydroorotase) and/or intron DNA may be inserted along with the heterologous promoter DNA. If linked to the desired protein coding sequence, amplification of the marker DNA by standard selection methods results in co-amplification of the desired protein coding sequences in the cells.

In another embodiment of the present invention, cells and tissues may be engineered to express an endogenous gene comprising the polynucleotides of the invention under the control of inducible regulatory elements, in which case the regulatory sequences of the endogenous gene may be replaced by homologous recombination. As described herein, gene targeting can be used to replace a gene's existing regulatory region with a regulatory sequence isolated from a different gene or a novel regulatory sequence synthesized by genetic engineering methods. Such regulatory sequences may be comprised of promoters, enhancers, scaffold-attachment regions, negative regulatory elements, transcriptional initiation sites, regulatory protein binding sites or combinations of said sequences. Alternatively, sequences which affect the structure or

stability of the RNA or protein produced may be replaced, removed, added, or otherwise modified by targeting. These sequences include polyadenylation signals, mRNA stability elements, splice sites, leader sequences for enhancing or modifying transport or secretion properties of the protein, or other sequences which alter or improve the function or stability of protein or RNA molecules.

The targeting event may be a simple insertion of the regulatory sequence, placing the gene under the control of the new regulatory sequence, *e.g.*, inserting a new promoter or enhancer or both upstream of a gene. Alternatively, the targeting event may be a simple deletion of a regulatory element, such as the deletion of a tissue-specific negative regulatory element. Alternatively, the targeting event may replace an existing element; for example, a tissue-specific enhancer can be replaced by an enhancer that has broader or different cell-type specificity than the naturally occurring elements. Here, the naturally occurring sequences are deleted and new sequences are added. In all cases, the identification of the targeting event may be facilitated by the use of one or more selectable marker genes that are contiguous with the targeting DNA, allowing for the selection of cells in which the exogenous DNA has integrated into the cell genome. The identification of the targeting event may also be facilitated by the use of one or more marker genes exhibiting the property of negative selection, such that the negatively selectable marker is linked to the exogenous DNA, but configured such that the negatively selectable marker flanks the targeting sequence, and such that a correct homologous recombination event with sequences in the host cell genome does not result in the stable integration of the negatively selectable marker. Markers useful for this purpose include the Herpes Simplex Virus thymidine kinase (TK) gene or the bacterial xanthine-guanine phosphoribosyl-transferase (gpt) gene.

The gene targeting or gene activation techniques which can be used in accordance with this aspect of the invention are more particularly described in U.S. Patent No. 5,272,071 to Chappel; U.S. Patent No. 5,578,461 to Sherwin et al.; International Application No. PCT/US92/09627 (WO93/09222) by Selden et al.; and International Application No. PCT/US90/06436 (WO91/06667) by Skoultchi et al., each of which is incorporated by reference herein in its entirety.

4.9 TRANSGENIC ANIMALS

In preferred methods to determine biological functions of the polypeptides of the invention in vivo, one or more genes provided by the invention are either over expressed or

inactivated in the germ line of animals using homologous recombination [Capecchi, Science 244:1288-1292 (1989)]. Animals in which the gene is over expressed, under the regulatory control of exogenous or endogenous promoter elements, are known as transgenic animals. Animals in which an endogenous gene has been inactivated by homologous recombination are referred to as "knockout" animals. Knockout animals, preferably non-human mammals, can be prepared as described in U.S. Patent No. 5,557,032, incorporated herein by reference. Transgenic animals are useful to determine the roles polypeptides of the invention play in biological processes, and preferably in disease states. Transgenic animals are useful as model systems to identify compounds that modulate lipid metabolism. Transgenic animals, preferably non-human mammals, are produced using methods as described in U.S. Patent No 5,489,743 and PCT Publication No. WO94/28122, incorporated herein by reference.

Transgenic animals can be prepared wherein all or part of a promoter of the polynucleotides of the invention is either activated or inactivated to alter the level of expression of the polypeptides of the invention. Inactivation can be carried out using homologous recombination methods described above. Activation can be achieved by supplementing or even replacing the homologous promoter to provide for increased protein expression. The homologous promoter can be supplemented by insertion of one or more heterologous enhancer elements known to confer promoter activation in a particular tissue.

The polynucleotides of the present invention also make possible the development, through, e.g., homologous recombination or knock out strategies, of animals that fail to express polypeptides of the invention or that express a variant polypeptide. Such animals are useful as models for studying the *in vivo* activities of polypeptide as well as for studying modulators of the polypeptides of the invention.

In preferred methods to determine biological functions of the polypeptides of the invention *in vivo*, one or more genes provided by the invention are either over expressed or inactivated in the germ line of animals using homologous recombination [Capecchi, Science 244:1288-1292 (1989)]. Animals in which the gene is over expressed, under the regulatory control of exogenous or endogenous promoter elements, are known as transgenic animals. Animals in which an endogenous gene has been inactivated by homologous recombination are referred to as "knockout" animals. Knockout animals, preferably non-human mammals, can be prepared as described in U.S. Patent No. 5,557,032, incorporated herein by reference. Transgenic animals are useful to determine the roles polypeptides of the invention play in biological processes, and preferably in disease states. Transgenic animals are useful as model

systems to identify compounds that modulate lipid metabolism. Transgenic animals, preferably non-human mammals, are produced using methods as described in U.S. Patent No 5,489,743 and PCT Publication No. WO94/28122, incorporated herein by reference.

Transgenic animals can be prepared wherein all or part of the polynucleotides of the invention promoter is either activated or inactivated to alter the level of expression of the polypeptides of the invention. Inactivation can be carried out using homologous recombination methods described above. Activation can be achieved by supplementing or even replacing the homologous promoter to provide for increased protein expression. The homologous promoter can be supplemented by insertion of one or more heterologous enhancer elements known to confer promoter activation in a particular tissue.

4.10 USES AND BIOLOGICAL ACTIVITY

The polynucleotides and proteins of the present invention are expected to exhibit one or more of the uses or biological activities (including those associated with assays cited herein) identified herein. Uses or activities described for proteins of the present invention may be provided by administration or use of such proteins or of polynucleotides encoding such proteins (such as, for example, in gene therapies or vectors suitable for introduction of DNA). The mechanism underlying the particular condition or pathology will dictate whether the polypeptides of the invention, the polynucleotides of the invention or modulators (activators or inhibitors) thereof would be beneficial to the subject in need of treatment. Thus, "therapeutic compositions of the invention" include compositions comprising isolated polynucleotides (including recombinant DNA molecules, cloned genes and degenerate variants thereof) or polypeptides of the invention (including full length protein, mature protein and truncations or domains thereof), or compounds and other substances that modulate the overall activity of the target gene products, either at the level of target gene/protein expression or target protein activity. Such modulators include polypeptides, analogs, (variants), including fragments and fusion proteins, antibodies and other binding proteins; chemical compounds that directly or indirectly activate or inhibit the polypeptides of the invention (identified, e.g., via drug screening assays as described herein); antisense polynucleotides and polynucleotides suitable for triple helix formation; and in particular antibodies or other binding partners that specifically recognize one or more epitopes of the polypeptides of the invention.

The polypeptides of the present invention may likewise be involved in cellular activation or in one of the other physiological pathways described herein.

4.10.1 RESEARCH USES AND UTILITIES

The polynucleotides provided by the present invention can be used by the research community for various purposes. The polynucleotides can be used to express recombinant protein for analysis, characterization or therapeutic use; as markers for tissues in which the corresponding protein is preferentially expressed (either constitutively or at a particular stage of tissue differentiation or development or in disease states); as molecular weight markers on gels; as chromosome markers or tags (when labeled) to identify chromosomes or to map related gene positions; to compare with endogenous DNA sequences in patients to identify potential genetic disorders; as probes to hybridize and thus discover novel, related DNA sequences; as a source of information to derive PCR primers for genetic fingerprinting; as a probe to "subtract-out" known sequences in the process of discovering other novel polynucleotides; for selecting and making oligomers for attachment to a "gene chip" or other support, including for examination of expression patterns; to raise anti-protein antibodies using DNA immunization techniques; and as an antigen to raise anti-DNA antibodies or elicit another immune response. Where the polynucleotide encodes a protein which binds or potentially binds to another protein (such as, for example, in a receptor-ligand interaction), the polynucleotide can also be used in interaction trap assays (such as, for example, that described in Gyuris et al., Cell 75:791-803 (1993)) to identify polynucleotides encoding the other protein with which binding occurs or to identify inhibitors of the binding interaction.

The polypeptides provided by the present invention can similarly be used in assays to determine biological activity, including in a panel of multiple proteins for high-throughput screening; to raise antibodies or to elicit another immune response; as a reagent (including the labeled reagent) in assays designed to quantitatively determine levels of the protein (or its receptor) in biological fluids; as markers for tissues in which the corresponding polypeptide is preferentially expressed (either constitutively or at a particular stage of tissue differentiation or development or in a disease state); and, of course, to isolate correlative receptors or ligands. Proteins involved in these binding interactions can also be used to screen for peptide or small molecule inhibitors or agonists of the binding interaction.

Any or all of these research utilities are capable of being developed into reagent grade or kit format for commercialization as research products.

Methods for performing the uses listed above are well known to those skilled in the art. References disclosing such methods include without limitation "Molecular Cloning: A Laboratory Manual", 2d ed., Cold Spring Harbor Laboratory Press, Sambrook, J., E. F. Fritsch and T. Maniatis eds., 1989, and "Methods in Enzymology: Guide to Molecular Cloning Techniques", Academic Press, Berger, S. L. and A. R. Kimmel eds., 1987.

4.10.2 NUTRITIONAL USES

Polynucleotides and polypeptides of the present invention can also be used as nutritional sources or supplements. Such uses include without limitation use as a protein or amino acid supplement, use as a carbon source, use as a nitrogen source and use as a source of carbohydrate. In such cases the polypeptide or polynucleotide of the invention can be added to the feed of a particular organism or can be administered as a separate solid or liquid preparation, such as in the form of powder, pills, solutions, suspensions or capsules. In the case of microorganisms, the polypeptide or polynucleotide of the invention can be added to the medium in or on which the microorganism is cultured.

4.10.3 CYTOKINE AND CELL PROLIFERATION/DIFFERENTIATION ACTIVITY

A polypeptide of the present invention may exhibit activity relating to cytokine, cell proliferation (either inducing or inhibiting) or cell differentiation (either inducing or inhibiting) activity or may induce production of other cytokines in certain cell populations. A polynucleotide of the invention can encode a polypeptide exhibiting such attributes. Many protein factors discovered to date, including all known cytokines, have exhibited activity in one or more factor-dependent cell proliferation assays, and hence the assays serve as a convenient confirmation of cytokine activity. The activity of therapeutic compositions of the present invention is evidenced by any one of a number of routine factor dependent cell proliferation assays for cell lines including, without limitation, 32D, DA2, DA1G, T10, B9, B9/11, BaF3, MC9/G, M+(preB M+), 2E8, RB5, DA1, 123, T1165, HT2, CTLL2, TF-1, Mo7e, CMK, HUVEC, and Caco. Therapeutic compositions of the invention can be used in the following:

Assays for T-cell or thymocyte proliferation include without limitation those described in: Current Protocols in Immunology, Ed by J. E. Coligan, A. M. Kruisbeek, D. H. Margulies, E. M. Shevach, W. Strober, Pub. Greene Publishing Associates and

Wiley-Interscience (Chapter 3, *In Vitro* assays for Mouse Lymphocyte Function 3.1-3.19; Chapter 7, Immunologic studies in Humans); Takai et al., J. Immunol. 137:3494-3500, 1986; Bertagnolli et al., J. Immunol. 145:1706-1712, 1990; Bertagnolli et al., Cellular Immunology 133:327-341, 1991; Bertagnolli, et al., I. Immunol. 149:3778-3783, 1992; Bowman et al., I. Immunol. 152:1756-1761, 1994.

Assays for cytokine production and/or proliferation of spleen cells, lymph node cells or thymocytes include, without limitation, those described in: Polyclonal T cell stimulation, Kruisbeek, A. M. and Shevach, E. M. In Current Protocols in Immunology. J. E. e.a. Coligan eds. Vol 1 pp. 3.12.1-3.12.14, John Wiley and Sons, Toronto. 1994; and Measurement of mouse and human interleukin-γ, Schreiber, R. D. In Current Protocols in Immunology. J. E. e.a. Coligan eds. Vol 1 pp. 6.8.1-6.8.8, John Wiley and Sons, Toronto. 1994.

Assays for proliferation and differentiation of hematopoietic and lymphopoietic cells include, without limitation, those described in: Measurement of Human and Murine Interleukin 2 and Interleukin 4, Bottomly, K., Davis, L. S. and Lipsky, P. E. In Current Protocols in Immunology. J. E. e.a. Coligan eds. Vol 1 pp. 6.3.1-6.3.12, John Wiley and Sons, Toronto. 1991; deVries et al., J. Exp. Med. 173:1205-1211, 1991; Moreau et al., Nature 336:690-692, 1988; Greenberger et al., Proc. Natl. Acad. Sci. U.S.A. 80:2931-2938, 1983; Measurement of mouse and human interleukin 6--Nordan, R. In Current Protocols in Immunology. J. E. Coligan eds. Vol 1 pp. 6.6.1-6.6.5, John Wiley and Sons, Toronto. 1991; Smith et al., Proc. Natl. Aced. Sci. U.S.A. 83:1857-1861, 1986; Measurement of human Interleukin 11--Bennett, F., Giannotti, J., Clark, S. C. and Turner, K. J. In Current Protocols in Immunology. J. E. Coligan eds. Vol 1 pp. 6.15.1 John Wiley and Sons, Toronto. 1991; Measurement of mouse and human Interleukin 9--Ciarletta, A., Giannotti, J., Clark, S. C. and Turner, K. J. In Current Protocols in Immunology. J. E. Coligan eds. Vol 1 pp. 6.13.1, John Wiley and Sons, Toronto. 1991.

Assays for T-cell clone responses to antigens (which will identify, among others, proteins that affect APC-T cell interactions as well as direct T-cell effects by measuring proliferation and cytokine production) include, without limitation, those described in: Current Protocols in Immunology, Ed by J. E. Coligan, A. M. Kruisbeek, D. H. Margulies, E. M. Shevach, W Strober, Pub. Greene Publishing Associates and Wiley-Interscience (Chapter 3, *In Vitro* assays for Mouse Lymphocyte Function; Chapter 6, Cytokines and their cellular receptors; Chapter 7, Immunologic studies in Humans); Weinberger et al., Proc. Natl. Acad. Sci. USA 77:6091-6095, 1980; Weinberger et al., Eur. J. Immun. 11:405-411,

1981; Takai et al., J. Immunol. 137:3494-3500, 1986; Takai et al., J. Immunol. 140:508-512, 1988.

4.10.4 STEM CELL GROWTH FACTOR ACTIVITY

A polypeptide of the present invention may exhibit stem cell growth factor activity and be involved in the proliferation, differentiation and survival of pluripotent and totipotent stem cells including primordial germ cells, embryonic stem cells, hematopoietic stem cells and/or germ line stem cells. Administration of the polypeptide of the invention to stem cells *in vivo* or *ex vivo* is expected to maintain and expand cell populations in a totipotential or pluripotential state which would be useful for re-engineering damaged or diseased tissues, transplantation, manufacture of bio-pharmaceuticals and the development of bio-sensors. The ability to produce large quantities of human cells has important working applications for the production of human proteins which currently must be obtained from non-human sources or donors, implantation of cells to treat diseases such as Parkinson's, Alzheimer's and other neurodegenerative diseases; tissues for grafting such as bone marrow, skin, cartilage, tendons, bone, muscle (including cardiac muscle), blood vessels, cornea, neural cells, gastrointestinal cells and others; and organs for transplantation such as kidney, liver, pancreas (including islet cells), heart and lung.

It is contemplated that multiple different exogenous growth factors and/or cytokines may be administered in combination with the polypeptide of the invention to achieve the desired effect, including any of the growth factors listed herein, other stem cell maintenance factors, and specifically including stem cell factor (SCF), leukemia inhibitory factor (LIF), Flt-3 ligand (Flt-3L), any of the interleukins, recombinant soluble IL-6 receptor fused to IL-6, macrophage inflammatory protein 1-alpha (MIP-1-alpha), G-CSF, GM-CSF, thrombopoietin (TPO), platelet factor 4 (PF-4), platelet-derived growth factor (PDGF), neural growth factors and basic fibroblast growth factor (bFGF).

Since totipotent stem cells can give rise to virtually any mature cell type, expansion of these cells in culture will facilitate the production of large quantities of mature cells. Techniques for culturing stem cells are known in the art and administration of polypeptides of the invention, optionally with other growth factors and/or cytokines, is expected to enhance the survival and proliferation of the stem cell populations. This can be accomplished by direct administration of the polypeptide of the invention to the culture medium. Alternatively, stroma cells transfected with a polynucleotide that encodes for the

polypeptide of the invention can be used as a feeder layer for the stem cell populations in culture or in vivo. Stromal support cells for feeder layers may include embryonic bone marrow fibroblasts, bone marrow stromal cells, fetal liver cells, or cultured embryonic fibroblasts (see U.S. Patent No. 5,690,926).

Stem cells themselves can be transfected with a polynucleotide of the invention to induce autocrine expression of the polypeptide of the invention. This will allow for generation of undifferentiated totipotential/pluripotential stem cell lines that are useful as is or that can then be differentiated into the desired mature cell types. These stable cell lines can also serve as a source of undifferentiated totipotential/pluripotential mRNA to create cDNA libraries and templates for polymerase chain reaction experiments. These studies would allow for the isolation and identification of differentially expressed genes in stem cell populations that regulate stem cell proliferation and/or maintenance.

Expansion and maintenance of totipotent stem cell populations will be useful in the treatment of many pathological conditions. For example, polypeptides of the present invention may be used to manipulate stem cells in culture to give rise to neuroepithelial cells that can be used to augment or replace cells damaged by illness, autoimmune disease, accidental damage or genetic disorders. The polypeptide of the invention may be useful for inducing the proliferation of neural cells and for the regeneration of nerve and brain tissue, i.e. for the treatment of central and peripheral nervous system diseases and neuropathies, as well as mechanical and traumatic disorders which involve degeneration, death or trauma to neural cells or nerve tissue. In addition, the expanded stem cell populations can also be genetically altered for gene therapy purposes and to decrease host rejection of replacement tissues after grafting or implantation.

Expression of the polypeptide of the invention and its effect on stem cells can also be manipulated to achieve controlled differentiation of the stem cells into more differentiated cell types. A broadly applicable method of obtaining pure populations of a specific differentiated cell type from undifferentiated stem cell populations involves the use of a cell-type specific promoter driving a selectable marker. The selectable marker allows only cells of the desired type to survive. For example, stem cells can be induced to differentiate into cardiomyocytes (Wobus et al., Differentiation, 48: 173-182, (1991); Klug et al., J. Clin. Invest., 98(1): 216-224, (1998)) or skeletal muscle cells (Browder, L. W. In: *Principles of Tissue Engineering eds.* Lanza et al., Academic Press (1997)). Alternatively, directed differentiation of stem cells can be accomplished by culturing the stem cells in the presence

of a differentiation factor such as retinoic acid and an antagonist of the polypeptide of the invention which would inhibit the effects of endogenous stem cell factor activity and allow differentiation to proceed.

In vitro cultures of stem cells can be used to determine if the polypeptide of the invention exhibits stem cell growth factor activity. Stem cells are isolated from any one of various cell sources (including hematopoietic stem cells and embryonic stem cells) and cultured on a feeder layer, as described by Thompson et al. Proc. Natl. Acad. Sci, U.S.A., 92: 7844-7848 (1995), in the presence of the polypeptide of the invention alone or in combination with other growth factors or cytokines. The ability of the polypeptide of the invention to induce stem cells proliferation is determined by colony formation on semi-solid support e.g. as described by Bernstein et al., Blood, 77: 2316-2321 (1991).

4.10.5 HEMATOPOIESIS REGULATING ACTIVITY

A polypeptide of the present invention may be involved in regulation of hematopoiesis and, consequently, in the treatment of myeloid or lymphoid cell disorders. Even marginal biological activity in support of colony forming cells or of factor-dependent cell lines indicates involvement in regulating hematopoiesis, e.g. in supporting the growth and proliferation of erythroid progenitor cells alone or in combination with other cytokines, thereby indicating utility, for example, in treating various anemias or for use in conjunction with irradiation/chemotherapy to stimulate the production of erythroid precursors and/or erythroid cells; in supporting the growth and proliferation of myeloid cells such as granulocytes and monocytes/macrophages (i.e., traditional CSF activity) useful, for example, in conjunction with chemotherapy to prevent or treat consequent myelo-suppression; in supporting the growth and proliferation of megakaryocytes and consequently of platelets thereby allowing prevention or treatment of various platelet disorders such as thrombocytopenia, and generally for use in place of or complimentary to platelet transfusions; and/or in supporting the growth and proliferation of hematopoietic stem cells which are capable of maturing to any and all of the above-mentioned hematopoietic cells and therefore find therapeutic utility in various stem cell disorders (such as those usually treated with transplantation, including, without limitation, aplastic anemia and paroxysmal nocturnal hemoglobinuria), as well as in repopulating the stem cell compartment post irradiation/chemotherapy, either *in-vivo* or *ex-vivo* (i.e., in conjunction with bone marrow

transplantation or with peripheral progenitor cell transplantation (homologous or heterologous)) as normal cells or genetically manipulated for gene therapy.

Therapeutic compositions of the invention can be used in the following:

Suitable assays for proliferation and differentiation of various hematopoietic lines are cited above.

Assays for embryonic stem cell differentiation (which will identify, among others, proteins that influence embryonic differentiation hematopoiesis) include, without limitation, those described in: Johansson et al. Cellular Biology 15:141-151, 1995; Keller et al., Molecular and Cellular Biology 13:473-486, 1993; McClanahan et al., Blood 81:2903-2915, 1993.

Assays for stem cell survival and differentiation (which will identify, among others, proteins that regulate lympho-hematopoiesis) include, without limitation, those described in: Methylcellulose colony forming assays, Freshney, M. G. In Culture of Hematopoietic Cells. R. I. Freshney, et al. eds. Vol pp. 265-268, Wiley-Liss, Inc., New York, N.Y. 1994; Hirayama et al., Proc. Natl. Acad. Sci. USA 89:5907-5911, 1992; Primitive hematopoietic colony forming cells with high proliferative potential, McNiece, I. K. and Briddell, R. A. In Culture of Hematopoietic Cells. R. I. Freshney, et al. eds. Vol pp. 23-39, Wiley-Liss, Inc., New York, N.Y. 1994; Neben et al., Experimental Hematology 22:353-359, 1994; Cobblestone area forming cell assay, Ploemacher, R. E. In Culture of Hematopoietic Cells. R. I. Freshney, et al. eds. Vol pp. 1-21, Wiley-Liss, Inc., New York, N.Y. 1994; Long term bone marrow cultures in the presence of stromal cells, Spooncer, E., Dexter, M. and Allen, T. In Culture of Hematopoietic Cells. R. I. Freshney, et al. eds. Vol pp. 163-179, Wiley-Liss, Inc., New York, N.Y. 1994; Long term culture initiating cell assay, Sutherland, H. J. In Culture of Hematopoietic Cells. R. I. Freshney, et al. eds. Vol pp. 139-162, Wiley-Liss, Inc., New York, N.Y. 1994.

4.10.6 TISSUE GROWTH ACTIVITY

A polypeptide of the present invention also may be involved in bone, cartilage, tendon, ligament and/or nerve tissue growth or regeneration, as well as in wound healing and tissue repair and replacement, and in healing of burns, incisions and ulcers.

A polypeptide of the present invention which induces cartilage and/or bone growth in circumstances where bone is not normally formed, has application in the healing of bone fractures and cartilage damage or defects in humans and other animals. Compositions of a

polypeptide, antibody, binding partner, or other modulator of the invention may have prophylactic use in closed as well as open fracture reduction and also in the improved fixation of artificial joints. De novo bone formation induced by an osteogenic agent contributes to the repair of congenital, trauma induced, or oncologic resection induced craniofacial defects, and also is useful in cosmetic plastic surgery.

A polypeptide of this invention may also be involved in attracting bone-forming cells, stimulating growth of bone-forming cells, or inducing differentiation of progenitors of bone-forming cells. Treatment of osteoporosis, osteoarthritis, bone degenerative disorders, or periodontal disease, such as through stimulation of bone and/or cartilage repair or by blocking inflammation or processes of tissue destruction (collagenase activity, osteoclast activity, etc.) mediated by inflammatory processes may also be possible using the composition of the invention.

Another category of tissue regeneration activity that may involve the polypeptide of the present invention is tendon/ligament formation. Induction of tendon/ligament-like tissue or other tissue formation in circumstances where such tissue is not normally formed, has application in the healing of tendon or ligament tears, deformities and other tendon or ligament defects in humans and other animals. Such a preparation employing a tendon/ligament-like tissue inducing protein may have prophylactic use in preventing damage to tendon or ligament tissue, as well as use in the improved fixation of tendon or ligament to bone or other tissues, and in repairing defects to tendon or ligament tissue. De novo tendon/ligament-like tissue formation induced by a composition of the present invention contributes to the repair of congenital, trauma induced, or other tendon or ligament defects of other origin, and is also useful in cosmetic plastic surgery for attachment or repair of tendons or ligaments. The compositions of the present invention may provide environment to attract tendon- or ligament-forming cells, stimulate growth of tendon- or ligament-forming cells, induce differentiation of progenitors of tendon- or ligament-forming cells, or induce growth of tendon/ligament cells or progenitors *ex vivo* for return *in vivo* to effect tissue repair. The compositions of the invention may also be useful in the treatment of tendinitis, carpal tunnel syndrome and other tendon or ligament defects. The compositions may also include an appropriate matrix and/or sequestering agent as a carrier as is well known in the art.

The compositions of the present invention may also be useful for proliferation of neural cells and for regeneration of nerve and brain tissue, i.e. for the treatment of central

and peripheral nervous system diseases and neuropathies, as well as mechanical and traumatic disorders, which involve degeneration, death or trauma to neural cells or nerve tissue. More specifically, a composition may be used in the treatment of diseases of the peripheral nervous system, such as peripheral nerve injuries, peripheral neuropathy and localized neuropathies, and central nervous system diseases, such as Alzheimer's, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and Shy-Drager syndrome. Further conditions which may be treated in accordance with the present invention include mechanical and traumatic disorders, such as spinal cord disorders, head trauma and cerebrovascular diseases such as stroke. Peripheral neuropathies resulting from chemotherapy or other medical therapies may also be treatable using a composition of the invention.

Compositions of the invention may also be useful to promote better or faster closure of non-healing wounds, including without limitation pressure ulcers, ulcers associated with vascular insufficiency, surgical and traumatic wounds, and the like.

Compositions of the present invention may also be involved in the generation or regeneration of other tissues, such as organs (including, for example, pancreas, liver, intestine, kidney, skin, endothelium), muscle (smooth, skeletal or cardiac) and vascular (including vascular endothelium) tissue, or for promoting the growth of cells comprising such tissues. Part of the desired effects may be by inhibition or modulation of fibrotic scarring may allow normal tissue to regenerate. A polypeptide of the present invention may also exhibit angiogenic activity.

A composition of the present invention may also be useful for gut protection or regeneration and treatment of lung or liver fibrosis, reperfusion injury in various tissues, and conditions resulting from systemic cytokine damage.

A composition of the present invention may also be useful for promoting or inhibiting differentiation of tissues described above from precursor tissues or cells; or for inhibiting the growth of tissues described above.

Therapeutic compositions of the invention can be used in the following:

Assays for tissue generation activity include, without limitation, those described in: International Patent Publication No. WO95/16035 (bone, cartilage, tendon); International Patent Publication No. WO95/05846 (nerve, neuronal); International Patent Publication No. WO91/07491 (skin, endothelium).

Assays for wound healing activity include, without limitation, those described in: Winter, Epidermal Wound Healing, pps. 71-112 (Maibach, H. I. and Rovee, D. T., eds.), Year Book Medical Publishers, Inc., Chicago, as modified by Eaglstein and Mertz, J. Invest. Dermatol 71:382-84 (1978).

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4.10.7 IMMUNE STIMULATING OR SUPPRESSING ACTIVITY

A polypeptide of the present invention may also exhibit immune stimulating or immune suppressing activity, including without limitation the activities for which assays are described herein. A polynucleotide of the invention can encode a polypeptide exhibiting
10 such activities. A protein may be useful in the treatment of various immune deficiencies and disorders (including severe combined immunodeficiency (SCID)), e.g., in regulating (up or down) growth and proliferation of T and/or B lymphocytes, as well as effecting the cytolytic activity of NK cells and other cell populations. These immune deficiencies may be genetic or be caused by viral (e.g., HIV) as well as bacterial or fungal infections, or may result from
15 autoimmune disorders. More specifically, infectious diseases causes by viral, bacterial, fungal or other infection may be treatable using a protein of the present invention, including infections by HIV, hepatitis viruses, herpes viruses, mycobacteria, Leishmania spp., malaria spp. and various fungal infections such as candidiasis. Of course, in this regard, proteins of the present invention may also be useful where a boost to the immune system generally may
20 be desirable, i.e., in the treatment of cancer.

Autoimmune disorders which may be treated using a protein of the present invention include, for example, connective tissue disease, multiple sclerosis, systemic lupus erythematosus, rheumatoid arthritis, autoimmune pulmonary inflammation, Guillain-Barre syndrome, autoimmune thyroiditis, insulin dependent diabetes mellitis, myasthenia gravis,
25 graft-versus-host disease and autoimmune inflammatory eye disease. Such a protein (or antagonists thereof, including antibodies) of the present invention may also to be useful in the treatment of allergic reactions and conditions (*e.g.*, anaphylaxis, serum sickness, drug reactions, food allergies, insect venom allergies, mastocytosis, allergic rhinitis, hypersensitivity pneumonitis, urticaria, angioedema, eczema, atopic dermatitis, allergic
30 contact dermatitis, erythema multiforme, Stevens-Johnson syndrome, allergic conjunctivitis, atopic keratoconjunctivitis, venereal keratoconjunctivitis, giant papillary conjunctivitis and contact allergies), such as asthma (particularly allergic asthma) or other respiratory problems. Other conditions, in which immune suppression is desired (including, for

example, organ transplantation), may also be treatable using a protein (or antagonists thereof) of the present invention. The therapeutic effects of the polypeptides or antagonists thereof on allergic reactions can be evaluated by in vivo animals models such as the cumulative contact enhancement test (Lastbom et al., Toxicology 125: 59-66, 1998), skin prick test (Hoffmann et al., Allergy 54: 446-54, 1999), guinea pig skin sensitization test (Vohr et al., Arch. Toxocol. 73: 501-9), and murine local lymph node assay (Kimber et al., J. Toxicol. Environ. Health 53: 563-79).

Using the proteins of the invention it may also be possible to modulate immune responses, in a number of ways. Down regulation may be in the form of inhibiting or blocking an immune response already in progress or may involve preventing the induction of an immune response. The functions of activated T cells may be inhibited by suppressing T cell responses or by inducing specific tolerance in T cells, or both. Immunosuppression of T cell responses is generally an active, non-antigen-specific, process which requires continuous exposure of the T cells to the suppressive agent. Tolerance, which involves inducing non-responsiveness or anergy in T cells, is distinguishable from immunosuppression in that it is generally antigen-specific and persists after exposure to the tolerizing agent has ceased. Operationally, tolerance can be demonstrated by the lack of a T cell response upon reexposure to specific antigen in the absence of the tolerizing agent.

Down regulating or preventing one or more antigen functions (including without limitation B lymphocyte antigen functions (such as, for example, B7)), e.g., preventing high level lymphokine synthesis by activated T cells, will be useful in situations of tissue, skin and organ transplantation and in graft-versus-host disease (GVHD). For example, blockage of T cell function should result in reduced tissue destruction in tissue transplantation. Typically, in tissue transplants, rejection of the transplant is initiated through its recognition as foreign by T cells, followed by an immune reaction that destroys the transplant. The administration of a therapeutic composition of the invention may prevent cytokine synthesis by immune cells, such as T cells, and thus acts as an immunosuppressant. Moreover, a lack of costimulation may also be sufficient to anergize the T cells, thereby inducing tolerance in a subject. Induction of long-term tolerance by B lymphocyte antigen-blocking reagents may avoid the necessity of repeated administration of these blocking reagents. To achieve sufficient immunosuppression or tolerance in a subject, it may also be necessary to block the function of a combination of B lymphocyte antigens.

The efficacy of particular therapeutic compositions in preventing organ transplant rejection or GVHD can be assessed using animal models that are predictive of efficacy in humans. Examples of appropriate systems which can be used include allogeneic cardiac grafts in rats and xenogeneic pancreatic islet cell grafts in mice, both of which have been used to examine the immunosuppressive effects of CTLA4Ig fusion proteins in vivo as described in Lenschow et al., Science 257:789-792 (1992) and Turka et al., Proc. Natl. Acad. Sci USA, 89:11102-11105 (1992). In addition, murine models of GVHD (see Paul ed., Fundamental Immunology, Raven Press, New York, 1989, pp. 846-847) can be used to determine the effect of therapeutic compositions of the invention on the development of that disease.

Blocking antigen function may also be therapeutically useful for treating autoimmune diseases. Many autoimmune disorders are the result of inappropriate activation of T cells that are reactive against self-tissue and which promote the production of cytokines and autoantibodies involved in the pathology of the diseases. Preventing the activation of autoreactive T cells may reduce or eliminate disease symptoms. Administration of reagents which block stimulation of T cells can be used to inhibit T cell activation and prevent production of autoantibodies or T cell-derived cytokines which may be involved in the disease process. Additionally, blocking reagents may induce antigen-specific tolerance of autoreactive T cells which could lead to long-term relief from the disease. The efficacy of blocking reagents in preventing or alleviating autoimmune disorders can be determined using a number of well-characterized animal models of human autoimmune diseases. Examples include murine experimental autoimmune encephalitis, systemic lupus erythmatosis in MRL/lpr/lpr mice or NZB hybrid mice, murine autoimmune collagen arthritis, diabetes mellitus in NOD mice and BB rats, and murine experimental myasthenia gravis (see Paul ed., Fundamental Immunology, Raven Press, New York, 1989, pp. 840-856).

Upregulation of an antigen function (e.g., a B lymphocyte antigen function), as a means of up regulating immune responses, may also be useful in therapy. Upregulation of immune responses may be in the form of enhancing an existing immune response or eliciting an initial immune response. For example, enhancing an immune response may be useful in cases of viral infection, including systemic viral diseases such as influenza, the common cold, and encephalitis.

Alternatively, anti-viral immune responses may be enhanced in an infected patient by removing T cells from the patient, costimulating the T cells in vitro with viral antigen-pulsed APCs either expressing a peptide of the present invention or together with a stimulatory form of a soluble peptide of the present invention and reintroducing the in vitro activated T cells into the patient. Another method of enhancing anti-viral immune responses would be to isolate infected cells from a patient, transfect them with a nucleic acid encoding a protein of the present invention as described herein such that the cells express all or a portion of the protein on their surface, and reintroduce the transfected cells into the patient. The infected cells would now be capable of delivering a costimulatory signal to, and thereby activate, T cells in vivo.

A polypeptide of the present invention may provide the necessary stimulation signal to T cells to induce a T cell mediated immune response against the transfected tumor cells. In addition, tumor cells which lack MHC class I or MHC class II molecules, or which fail to reexpress sufficient mounts of MHC class I or MHC class II molecules, can be transfected with nucleic acid encoding all or a portion of (e.g., a cytoplasmic-domain truncated portion) of an MHC class I alpha chain protein and β_2 microglobulin protein or an MHC class II alpha chain protein and an MHC class II beta chain protein to thereby express MHC class I or MHC class II proteins on the cell surface. Expression of the appropriate class I or class II MHC in conjunction with a peptide having the activity of a B lymphocyte antigen (e.g., B7-1, B7-2, B7-3) induces a T cell mediated immune response against the transfected tumor cell. Optionally, a gene encoding an antisense construct which blocks expression of an MHC class II associated protein, such as the invariant chain, can also be cotransfected with a DNA encoding a peptide having the activity of a B lymphocyte antigen to promote presentation of tumor associated antigens and induce tumor specific immunity. Thus, the induction of a T cell mediated immune response in a human subject may be sufficient to overcome tumor-specific tolerance in the subject.

The activity of a protein of the invention may, among other means, be measured by the following methods:

Suitable assays for thymocyte or splenocyte cytotoxicity include, without limitation, those described in: Current Protocols in Immunology, Ed by J. E. Coligan, A. M. Kruisbeek, D. H. Margulies, E. M. Shevach, W. Strober, Pub. Greene Publishing Associates and Wiley-Interscience (Chapter 3, In Vitro assays for Mouse Lymphocyte Function 3.1-3.19; Chapter 7, Immunologic studies in Humans); Herrmann et al., Proc. Natl. Acad. Sci. USA

78:2488-2492, 1981; Herrmann et al., J. Immunol. 128:1968-1974, 1982; Handa et al., J. Immunol. 135:1564-1572, 1985; Takai et al., I. Immunol. 137:3494-3500, 1986; Takai et al., J. Immunol. 140:508-512, 1988; Bowman et al., J. Virology 61:1992-1998; Bertagnolli et al., Cellular Immunology 133:327-341, 1991; Brown et al., J. Immunol. 153:3079-3092, 1994.

Assays for T-cell-dependent immunoglobulin responses and isotype switching (which will identify, among others, proteins that modulate T-cell dependent antibody responses and that affect Th1/Th2 profiles) include, without limitation, those described in: Maliszewski, J. Immunol. 144:3028-3033, 1990; and Assays for B cell function: In vitro antibody production, Mond, J. J. and Brunswick, M. In Current Protocols in Immunology. J. E. e.a. Coligan eds. Vol 1 pp. 3.8.1-3.8.16, John Wiley and Sons, Toronto. 1994.

Mixed lymphocyte reaction (MLR) assays (which will identify, among others, proteins that generate predominantly Th1 and CTL responses) include, without limitation, those described in: Current Protocols in Immunology, Ed by J. E. Coligan, A. M. Kruisbeek, D. H. Margulies, E. M. Shevach, W. Strober, Pub. Greene Publishing Associates and Wiley-Interscience (Chapter 3, In Vitro assays for Mouse Lymphocyte Function 3.1-3.19; Chapter 7, Immunologic studies in Humans); Takai et al., J. Immunol. 137:3494-3500, 1986; Takai et al., J. Immunol. 140:508-512, 1988; Bertagnolli et al., J. Immunol. 149:3778-3783, 1992.

Dendritic cell-dependent assays (which will identify, among others, proteins expressed by dendritic cells that activate naive T-cells) include, without limitation, those described in: Guery et al., J. Immunol. 134:536-544, 1995; Inaba et al., Journal of Experimental Medicine 173:549-559, 1991; Macatonia et al., Journal of Immunology 154:5071-5079, 1995; Porgador et al., Journal of Experimental Medicine 182:255-260, 1995; Nair et al., Journal of Virology 67:4062-4069, 1993; Huang et al., Science 264:961-965, 1994; Macatonia et al., Journal of Experimental Medicine 169:1255-1264, 1989; Bhardwaj et al., Journal of Clinical Investigation 94:797-807, 1994; and Inaba et al., Journal of Experimental Medicine 172:631-640, 1990.

Assays for lymphocyte survival/apoptosis (which will identify, among others, proteins that prevent apoptosis after superantigen induction and proteins that regulate lymphocyte homeostasis) include, without limitation, those described in: Darzynkiewicz et al., Cytometry 13:795-808, 1992; Gorczyca et al., Leukemia 7:659-670, 1993; Gorczyca et al., Cancer Research 53:1945-1951, 1993; Itoh et al., Cell 66:233-243, 1991; Zacharchuk,

Journal of Immunology 145:4037-4045, 1990; Zamai et al., Cytometry 14:891-897, 1993; Gorczyca et al., International Journal of Oncology 1:639-648, 1992.

Assays for proteins that influence early steps of T-cell commitment and development include, without limitation, those described in: Antica et al., Blood 84:111-117, 1994; Fine et al., Cellular Immunology 155:111-122, 1994; Galy et al., Blood 85:2770-2778, 1995; Toki et al., Proc. Nat. Acad Sci. USA 88:7548-7551, 1991.

4.10.8 ACTIVIN/INHIBIN ACTIVITY

A polypeptide of the present invention may also exhibit activin- or inhibin-related activities. A polynucleotide of the invention may encode a polypeptide exhibiting such characteristics. Inhibins are characterized by their ability to inhibit the release of follicle stimulating hormone (FSH), while activins and are characterized by their ability to stimulate the release of follicle stimulating hormone (FSH). Thus, a polypeptide of the present invention, alone or in heterodimers with a member of the inhibin family, may be useful as a contraceptive based on the ability of inhibins to decrease fertility in female mammals and decrease spermatogenesis in male mammals. Administration of sufficient amounts of other inhibins can induce infertility in these mammals. Alternatively, the polypeptide of the invention, as a homodimer or as a heterodimer with other protein subunits of the inhibin group, may be useful as a fertility inducing therapeutic, based upon the ability of activin molecules in stimulating FSH release from cells of the anterior pituitary. See, for example, U.S. Pat. No. 4,798,885. A polypeptide of the invention may also be useful for advancement of the onset of fertility in sexually immature mammals, so as to increase the lifetime reproductive performance of domestic animals such as, but not limited to, cows, sheep and pigs.

The activity of a polypeptide of the invention may, among other means, be measured by the following methods.

Assays for activin/inhibin activity include, without limitation, those described in: Vale et al., Endocrinology 91:562-572, 1972; Ling et al., Nature 321:779-782, 1986; Vale et al., Nature 321:776-779, 1986; Mason et al., Nature 318:659-663, 1985; Forage et al., Proc. Natl. Acad. Sci. USA 83:3091-3095, 1986.

4.10.9 CHEMOTACTIC/CHEMOKINETIC ACTIVITY

A polypeptide of the present invention may be involved in chemotactic or chemokinetic activity for mammalian cells, including, for example, monocytes, fibroblasts, neutrophils, T-cells, mast cells, eosinophils, epithelial and/or endothelial cells. A polynucleotide of the invention can encode a polypeptide exhibiting such attributes. Chemotactic and chemokinetic receptor activation can be used to mobilize or attract a desired cell population to a desired site of action. Chemotactic or chemokinetic compositions (e.g. proteins, antibodies, binding partners, or modulators of the invention) provide particular advantages in treatment of wounds and other trauma to tissues, as well as in treatment of localized infections. For example, attraction of lymphocytes, monocytes or neutrophils to tumors or sites of infection may result in improved immune responses against the tumor or infecting agent.

A protein or peptide has chemotactic activity for a particular cell population if it can stimulate, directly or indirectly, the directed orientation or movement of such cell population. Preferably, the protein or peptide has the ability to directly stimulate directed movement of cells. Whether a particular protein has chemotactic activity for a population of cells can be readily determined by employing such protein or peptide in any known assay for cell chemotaxis.

Therapeutic compositions of the invention can be used in the following:

Assays for chemotactic activity (which will identify proteins that induce or prevent chemotaxis) consist of assays that measure the ability of a protein to induce the migration of cells across a membrane as well as the ability of a protein to induce the adhesion of one cell population to another cell population. Suitable assays for movement and adhesion include, without limitation, those described in: Current Protocols in Immunology, Ed by J. E. Coligan, A. M. Kruisbeek, D. H. Margulies, E. M. Shevach, W. Strober, Pub. Greene Publishing Associates and Wiley-Interscience (Chapter 6.12, Measurement of alpha and beta Chemokines 6.12.1-6.12.28; Taub et al. J. Clin. Invest. 95:1370-1376, 1995; Lind et al. APMIS 103:140-146, 1995; Muller et al Eur. J. Immunol. 25:1744-1748; Gruber et al. J. of Immunol. 152:5860-5867, 1994; Johnston et al. J. of Immunol. 153:1762-1768, 1994.

4.10.10 HEMOSTATIC AND THROMBOLYTIC ACTIVITY

A polypeptide of the invention may also be involved in hemostatis or thrombolysis or thrombosis. A polynucleotide of the invention can encode a polypeptide exhibiting such attributes. Compositions may be useful in treatment of various coagulation disorders

(including hereditary disorders, such as hemophilias) or to enhance coagulation and other hemostatic events in treating wounds resulting from trauma, surgery or other causes. A composition of the invention may also be useful for dissolving or inhibiting formation of thromboses and for treatment and prevention of conditions resulting therefrom (such as, for example, infarction of cardiac and central nervous system vessels (e.g., stroke).

Therapeutic compositions of the invention can be used in the following:

Assay for hemostatic and thrombolytic activity include, without limitation, those described in: Linet et al., J. Clin. Pharmacol. 26:131-140, 1986; Burdick et al., Thrombosis Res. 45:413-419, 1987; Humphrey et al., Fibrinolysis 5:71-79 (1991); Schaub, Prostaglandins 35:467-474, 1988.

4.10.11 CANCER DIAGNOSIS AND THERAPY

Polypeptides of the invention may be involved in cancer cell generation, proliferation or metastasis. Detection of the presence or amount of polynucleotides or polypeptides of the invention may be useful for the diagnosis and/or prognosis of one or more types of cancer. For example, the presence or increased expression of a polynucleotide/polypeptide of the invention may indicate a hereditary risk of cancer, a precancerous condition, or an ongoing malignancy. Conversely, a defect in the gene or absence of the polypeptide may be associated with a cancer condition. Identification of single nucleotide polymorphisms associated with cancer or a predisposition to cancer may also be useful for diagnosis or prognosis.

Cancer treatments promote tumor regression by inhibiting tumor cell proliferation, inhibiting angiogenesis (growth of new blood vessels that is necessary to support tumor growth) and/or prohibiting metastasis by reducing tumor cell motility or invasiveness. Therapeutic compositions of the invention may be effective in adult and pediatric oncology including in solid phase tumors/malignancies, locally advanced tumors, human soft tissue sarcomas, metastatic cancer, including lymphatic metastases, blood cell malignancies including multiple myeloma, acute and chronic leukemias, and lymphomas, head and neck cancers including mouth cancer, larynx cancer and thyroid cancer, lung cancers including small cell carcinoma and non-small cell cancers, breast cancers including small cell carcinoma and ductal carcinoma, gastrointestinal cancers including esophageal cancer, stomach cancer, colon cancer, colorectal cancer and polyps associated with colorectal neoplasia, pancreatic cancers, liver cancer, urologic cancers including bladder cancer and

prostate cancer, malignancies of the female genital tract including ovarian carcinoma, uterine (including endometrial) cancers, and solid tumor in the ovarian follicle, kidney cancers including renal cell carcinoma, brain cancers including intrinsic brain tumors, neuroblastoma, astrocytic brain tumors, gliomas, metastatic tumor cell invasion in the central nervous system, bone cancers including osteomas, skin cancers including malignant melanoma, tumor progression of human skin keratinocytes, squamous cell carcinoma, basal cell carcinoma, hemangiopericytoma and Karposi's sarcoma.

Polypeptides, polynucleotides, or modulators of polypeptides of the invention (including inhibitors and stimulators of the biological activity of the polypeptide of the invention) may be administered to treat cancer. Therapeutic compositions can be administered in therapeutically effective dosages alone or in combination with adjuvant cancer therapy such as surgery, chemotherapy, radiotherapy, thermotherapy, and laser therapy, and may provide a beneficial effect, e.g. reducing tumor size, slowing rate of tumor growth, inhibiting metastasis, or otherwise improving overall clinical condition, without necessarily eradicating the cancer.

The composition can also be administered in therapeutically effective amounts as a portion of an anti-cancer cocktail. An anti-cancer cocktail is a mixture of the polypeptide or modulator of the invention with one or more anti-cancer drugs in addition to a pharmaceutically acceptable carrier for delivery. The use of anti-cancer cocktails as a cancer treatment is routine. Anti-cancer drugs that are well known in the art and can be used as a treatment in combination with the polypeptide or modulator of the invention include: Actinomycin D, Aminoglutethimide, Asparaginase, Bleomycin, Busulfan, Carboplatin, Carmustine, Chlorambucil, Cisplatin (cis-DDP), Cyclophosphamide, Cytarabine HCl (Cytosine arabinoside), Dacarbazine, Dactinomycin, Daunorubicin HCl, Doxorubicin HCl, Estramustine phosphate sodium, Etoposide (V16-213), Floxuridine, 5-Fluorouracil (5-Fu), Flutamide, Hydroxyurea (hydroxycarbamide), Ifosfamide, Interferon Alpha-2a, Interferon Alpha-2b, Leuprolide acetate (LHRH-releasing factor analog), Lomustine, Mechlorethamine HCl (nitrogen mustard), Melphalan, Mercaptopurine, Mesna, Methotrexate (MTX), Mitomycin, Mitoxantrone HCl, Octreotide, Plicamycin, Procarbazine HCl, Streptozocin, Tamoxifen citrate, Thioguanine, Thiotepa, Vinblastine sulfate, Vincristine sulfate, Amsacrine, Azacitidine, Hexamethylmelamine, Interleukin-2, Mitoguazone, Pentostatin, Semustine, Teniposide, and Vindesine sulfate.

In addition, therapeutic compositions of the invention may be used for prophylactic

treatment of cancer. There are hereditary conditions and/or environmental situations (e.g. exposure to carcinogens) known in the art that predispose an individual to developing cancers. Under these circumstances, it may be beneficial to treat these individuals with therapeutically effective doses of the polypeptide of the invention to reduce the risk of developing cancers.

In vitro models can be used to determine the effective doses of the polypeptide of the invention as a potential cancer treatment. These *in vitro* models include proliferation assays of cultured tumor cells, growth of cultured tumor cells in soft agar (see Freshney, (1987) Culture of Animal Cells: A Manual of Basic Technique, Wily-Liss, New York, NY Ch 18 and Ch 21), tumor systems in nude mice as described in Giovanella et al., J. Natl. Can. Inst., 52: 921-30 (1974), mobility and invasive potential of tumor cells in Boyden Chamber assays as described in Pilkington et al., Anticancer Res., 17: 4107-9 (1997), and angiogenesis assays such as induction of vascularization of the chick chorioallantoic membrane or induction of vascular endothelial cell migration as described in Ribatta et al., Intl. J. Dev. Biol., 40: 1189-97 (1999) and Li et al., Clin. Exp. Metastasis, 17:423-9 (1999), respectively. Suitable tumor cells lines are available, e.g. from American Type Tissue Culture Collection catalogs.

4.10.12 RECEPTOR/LIGAND ACTIVITY

A polypeptide of the present invention may also demonstrate activity as receptor, receptor ligand or inhibitor or agonist of receptor/ligand interactions. A polynucleotide of the invention can encode a polypeptide exhibiting such characteristics. Examples of such receptors and ligands include, without limitation, cytokine receptors and their ligands, receptor kinases and their ligands, receptor phosphatases and their ligands, receptors involved in cell-cell interactions and their ligands (including without limitation, cellular adhesion molecules (such as selectins, integrins and their ligands) and receptor/ligand pairs involved in antigen presentation, antigen recognition and development of cellular and humoral immune responses. Receptors and ligands are also useful for screening of potential peptide or small molecule inhibitors of the relevant receptor/ligand interaction. A protein of the present invention (including, without limitation, fragments of receptors and ligands) may themselves be useful as inhibitors of receptor/ligand interactions.

The activity of a polypeptide of the invention may, among other means, be measured by the following methods:

Suitable assays for receptor-ligand activity include without limitation those described in: Current Protocols in Immunology, Ed by J. E. Coligan, A. M. Kruisbeek, D. H. Margulics, E. M. Shevach, W. Strober, Pub. Greene Publishing Associates and Wiley-Interscience (Chapter 7.28, Measurement of Cellular Adhesion under static conditions 7.28.1- 7.28.22), Takai et al., Proc. Natl. Acad. Sci. USA 84:6864-6868, 1987; Bierer et al., J. Exp. Med. 168:1145-1156, 1988; Rosenstein et al., J. Exp. Med. 169:149-160 1989; Stoltenborg et al., J. Immunol. Methods 175:59-68, 1994; Stitt et al., Cell 80:661-670, 1995.

By way of example, the polypeptides of the invention may be used as a receptor for a ligand(s) thereby transmitting the biological activity of that ligand(s). Ligands may be identified through binding assays, affinity chromatography, dihybrid screening assays, BIAcore assays, gel overlay assays, or other methods known in the art.

Studies characterizing drugs or proteins as agonist or antagonist or partial agonists or a partial antagonist require the use of other proteins as competing ligands. The polypeptides of the present invention or ligand(s) thereof may be labeled by being coupled to radioisotopes, colorimetric molecules or a toxin molecules by conventional methods. ("Guide to Protein Purification" Murray P. Deutscher (ed) Methods in Enzymology Vol. 182 (1990) Academic Press, Inc. San Diego). Examples of radioisotopes include, but are not limited to, tritium and carbon-14 . Examples of colorimetric molecules include, but are not limited to, fluorescent molecules such as fluorescamine, or rhodamine or other colorimetric molecules. Examples of toxins include, but are not limited, to ricin.

4.10.13 DRUG SCREENING

This invention is particularly useful for screening chemical compounds by using the novel polypeptides or binding fragments thereof in any of a variety of drug screening techniques. The polypeptides or fragments employed in such a test may either be free in solution, affixed to a solid support, borne on a cell surface or located intracellularly. One method of drug screening utilizes eukaryotic or prokaryotic host cells which are stably transformed with recombinant nucleic acids expressing the polypeptide or a fragment thereof. Drugs are screened against such transformed cells in competitive binding assays. Such cells, either in viable or fixed form, can be used for standard binding assays. One may measure, for example, the formation of complexes between polypeptides of the invention or fragments and the agent being tested or examine the diminution in complex formation between the novel polypeptides and an appropriate cell line, which are well known in the art.

Sources for test compounds that may be screened for ability to bind to or modulate (i.e., increase or decrease) the activity of polypeptides of the invention include (1) inorganic and organic chemical libraries, (2) natural product libraries, and (3) combinatorial libraries comprised of either random or mimetic peptides, oligonucleotides or organic molecules.

Chemical libraries may be readily synthesized or purchased from a number of commercial sources, and may include structural analogs of known compounds or compounds that are identified as "hits" or "leads" via natural product screening.

The sources of natural product libraries are microorganisms (including bacteria and fungi), animals, plants or other vegetation, or marine organisms, and libraries of mixtures for screening may be created by: (1) fermentation and extraction of broths from soil, plant or marine microorganisms or (2) extraction of the organisms themselves. Natural product libraries include polyketides, non-ribosomal peptides, and (non-naturally occurring) variants thereof. For a review, see *Science 282*:63-68 (1998).

Combinatorial libraries are composed of large numbers of peptides, oligonucleotides or organic compounds and can be readily prepared by traditional automated synthesis methods, PCR, cloning or proprietary synthetic methods. Of particular interest are peptide and oligonucleotide combinatorial libraries. Still other libraries of interest include peptide, protein, peptidomimetic, multiparallel synthetic collection, recombinatorial, and polypeptide libraries. For a review of combinatorial chemistry and libraries created therefrom, see Myers, *Curr. Opin. Biotechnol.* 8:701-707 (1997). For reviews and examples of peptidomimetic libraries, see Al-Obeidi et al., *Mol. Biotechnol*, 9(3):205-23 (1998); Hruby et al., *Curr Opin Chem Biol*, 1(1):114-19 (1997); Dorner et al., *Bioorg Med Chem*, 4(5):709-15 (1996) (alkylated dipeptides).

Identification of modulators through use of the various libraries described herein permits modification of the candidate "hit" (or "lead") to optimize the capacity of the "hit" to bind a polypeptide of the invention. The molecules identified in the binding assay are then tested for antagonist or agonist activity in *in vivo* tissue culture or animal models that are well known in the art. In brief, the molecules are titrated into a plurality of cell cultures or animals and then tested for either cell/animal death or prolonged survival of the animal/cells.

The binding molecules thus identified may be complexed with toxins, e.g., ricin or cholera, or with other compounds that are toxic to cells such as radioisotopes. The toxin-binding molecule complex is then targeted to a tumor or other cell by the specificity of

the binding molecule for a polypeptide of the invention. Alternatively, the binding molecules may be complexed with imaging agents for targeting and imaging purposes.

4.10.14 ASSAY FOR RECEPTOR ACTIVITY

The invention also provides methods to detect specific binding of a polypeptide e.g. a ligand or a receptor. The art provides numerous assays particularly useful for identifying previously unknown binding partners for receptor polypeptides of the invention. For example, expression cloning using mammalian or bacterial cells, or dihybrid screening assays can be used to identify polynucleotides encoding binding partners. As another example, affinity chromatography with the appropriate immobilized polypeptide of the invention can be used to isolate polypeptides that recognize and bind polypeptides of the invention. There are a number of different libraries used for the identification of compounds, and in particular small molecules, that modulate (*i.e.,* increase or decrease) biological activity of a polypeptide of the invention. Ligands for receptor polypeptides of the invention can also be identified by adding exogenous ligands, or cocktails of ligands to two cells populations that are genetically identical except for the expression of the receptor of the invention: one cell population expresses the receptor of the invention whereas the other does not. The responses of the two cell populations to the addition of ligands(s) are then compared. Alternatively, an expression library can be co-expressed with the polypeptide of the invention in cells and assayed for an autocrine response to identify potential ligand(s). As still another example, BIAcore assays, gel overlay assays, or other methods known in the art can be used to identify binding partner polypeptides, including, (1) organic and inorganic chemical libraries, (2) natural product libraries, and (3) combinatorial libraries comprised of random peptides, oligonucleotides or organic molecules.

The role of downstream intracellular signaling molecules in the signaling cascade of the polypeptide of the invention can be determined. For example, a chimeric protein in which the cytoplasmic domain of the polypeptide of the invention is fused to the extracellular portion of a protein, whose ligand has been identified, is produced in a host cell. The cell is then incubated with the ligand specific for the extracellular portion of the chimeric protein, thereby activating the chimeric receptor. Known downstream proteins involved in intracellular signaling can then be assayed for expected modifications i.e. phosphorylation. Other methods known to those in the art can also be used to identify signaling molecules involved in receptor activity.

4.10.15 ANTI-INFLAMMATORY ACTIVITY

Compositions of the present invention may also exhibit anti-inflammatory activity. The anti-inflammatory activity may be achieved by providing a stimulus to cells involved in the inflammatory response, by inhibiting or promoting cell-cell interactions (such as, for example, cell adhesion), by inhibiting or promoting chemotaxis of cells involved in the inflammatory process, inhibiting or promoting cell extravasation, or by stimulating or suppressing production of other factors which more directly inhibit or promote an inflammatory response. Compositions with such activities can be used to treat inflammatory conditions including chronic or acute conditions), including without limitation intimation associated with infection (such as septic shock, sepsis or systemic inflammatory response syndrome (SIRS)), ischemia-reperfusion injury, endotoxin lethality, arthritis, complement-mediated hyperacute rejection, nephritis, cytokine or chemokine-induced lung injury, inflammatory bowel disease, Crohn's disease or resulting from over production of cytokines such as TNF or IL-1. Compositions of the invention may also be useful to treat anaphylaxis and hypersensitivity to an antigenic substance or material. Compositions of this invention may be utilized to prevent or treat conditions such as, but not limited to, sepsis, acute pancreatitis, endotoxin shock, cytokine induced shock, rheumatoid arthritis, chronic inflammatory arthritis, pancreatic cell damage from diabetes mellitus type 1, graft versus host disease, inflammatory bowel disease, inflamation associated with pulmonary disease, other autoimmune disease or inflammatory disease, an antiproliferative agent such as for acute or chronic mylegenous leukemia or in the prevention of premature labor secondary to intrauterine infections.

4.10.16 LEUKEMIAS

Leukemias and related disorders may be treated or prevented by administration of a therapeutic that promotes or inhibits function of the polynucleotides and/or polypeptides of the invention. Such leukemias and related disorders include but are not limited to acute leukemia, acute lymphocytic leukemia, acute myelocytic leukemia, myeloblastic, promyelocytic, myelomonocytic, monocytic, erythroleukemia, chronic leukemia, chronic myelocytic (granulocytic) leukemia and chronic lymphocytic leukemia (for a review of such disorders, see Fishman et al., 1985, Medicine, 2d Ed., J.B. Lippincott Co., Philadelphia).

4.10.17 NERVOUS SYSTEM DISORDERS

Nervous system disorders, involving cell types which can be tested for efficacy of intervention with compounds that modulate the activity of the polynucleotides and/or polypeptides of the invention, and which can be treated upon thus observing an indication of therapeutic utility, include but are not limited to nervous system injuries, and diseases or disorders which result in either a disconnection of axons, a diminution or degeneration of neurons, or demyelination. Nervous system lesions which may be treated in a patient (including human and non-human mammalian patients) according to the invention include but are not limited to the following lesions of either the central (including spinal cord, brain) or peripheral nervous systems:

(i) traumatic lesions, including lesions caused by physical injury or associated with surgery, for example, lesions which sever a portion of the nervous system, or compression injuries;

(ii) ischemic lesions, in which a lack of oxygen in a portion of the nervous system results in neuronal injury or death, including cerebral infarction or ischemia, or spinal cord infarction or ischemia;

(iii) infectious lesions, in which a portion of the nervous system is destroyed or injured as a result of infection, for example, by an abscess or associated with infection by human immunodeficiency virus, herpes zoster, or herpes simplex virus or with Lyme disease, tuberculosis, syphilis;

(iv) degenerative lesions, in which a portion of the nervous system is destroyed or injured as a result of a degenerative process including but not limited to degeneration associated with Parkinson's disease, Alzheimer's disease, Huntington's chorea, or amyotrophic lateral sclerosis;

(v) lesions associated with nutritional diseases or disorders, in which a portion of the nervous system is destroyed or injured by a nutritional disorder or disorder of metabolism including but not limited to, vitamin B12 deficiency, folic acid deficiency, Wernicke disease, tobacco-alcohol amblyopia, Marchiafava-Bignami disease (primary degeneration of the corpus callosum), and alcoholic cerebellar degeneration;

(vi) neurological lesions associated with systemic diseases including but not limited to diabetes (diabetic neuropathy, Bell's palsy), systemic lupus erythematosus, carcinoma, or sarcoidosis;

(vii) lesions caused by toxic substances including alcohol, lead, or particular neurotoxins; and

(viii) demyelinated lesions in which a portion of the nervous system is destroyed or injured by a demyelinating disease including but not limited to multiple sclerosis, human immunodeficiency virus-associated myelopathy, transverse myelopathy or various etiologies, progressive multifocal leukoencephalopathy, and central pontine myelinolysis.

Therapeutics which are useful according to the invention for treatment of a nervous system disorder may be selected by testing for biological activity in promoting the survival or differentiation of neurons. For example, and not by way of limitation, therapeutics which elicit any of the following effects may be useful according to the invention:

(i) increased survival time of neurons in culture;

(ii) increased sprouting of neurons in culture or in vivo;

(iii) increased production of a neuron-associated molecule in culture or *in vivo*, *e.g.*, choline acetyltransferase or acetylcholinesterase with respect to motor neurons; or

(iv) decreased symptoms of neuron dysfunction in vivo.

Such effects may be measured by any method known in the art. In preferred, non-limiting embodiments, increased survival of neurons may be measured by the method set forth in Arakawa et al. (1990, J. Neurosci. 10:3507-3515); increased sprouting of neurons may be detected by methods set forth in Pestronk et al. (1980, Exp. Neurol. 70:65-82) or Brown et al. (1981, Ann. Rev. Neurosci. 4:17-42); increased production of neuron-associated molecules may be measured by bioassay, enzymatic assay, antibody binding, Northern blot assay, *etc.*, depending on the molecule to be measured; and motor neuron dysfunction may be measured by assessing the physical manifestation of motor neuron disorder, *e.g.*, weakness, motor neuron conduction velocity, or functional disability.

In specific embodiments, motor neuron disorders that may be treated according to the invention include but are not limited to disorders such as infarction, infection, exposure to toxin, trauma, surgical damage, degenerative disease or malignancy that may affect motor neurons as well as other components of the nervous system, as well as disorders that selectively affect neurons such as amyotrophic lateral sclerosis, and including but not limited to progressive spinal muscular atrophy, progressive bulbar palsy, primary lateral sclerosis, infantile and juvenile muscular atrophy, progressive bulbar paralysis of childhood (Fazio-Londe syndrome), poliomyelitis and the post polio syndrome, and Hereditary Motorsensory Neuropathy (Charcot-Marie-Tooth Disease).

4.10.18 OTHER ACTIVITIES

A polypeptide of the invention may also exhibit one or more of the following additional activities or effects: inhibiting the growth, infection or function of, or killing, infectious agents, including, without limitation, bacteria, viruses, fungi and other parasites; effecting (suppressing or enhancing) bodily characteristics, including, without limitation, height, weight, hair color, eye color, skin, fat to lean ratio or other tissue pigmentation, or organ or body part size or shape (such as, for example, breast augmentation or diminution, change in bone form or shape); effecting biorhythms or circadian cycles or rhythms; effecting the fertility of male or female subjects; effecting the metabolism, catabolism, anabolism, processing, utilization, storage or elimination of dietary fat, lipid, protein, carbohydrate, vitamins, minerals, co-factors or other nutritional factors or component(s); effecting behavioral characteristics, including, without limitation, appetite, libido, stress, cognition (including cognitive disorders), depression (including depressive disorders) and violent behaviors; providing analgesic effects or other pain reducing effects; promoting differentiation and growth of embryonic stem cells in lineages other than hematopoietic lineages; hormonal or endocrine activity; in the case of enzymes, correcting deficiencies of the enzyme and treating deficiency-related diseases; treatment of hyperproliferative disorders (such as, for example, psoriasis); immunoglobulin-like activity (such as, for example, the ability to bind antigens or complement); and the ability to act as an antigen in a vaccine composition to raise an immune response against such protein or another material or entity which is cross-reactive with such protein.

4.10.19 IDENTIFICATION OF POLYMORPHISMS

The demonstration of polymorphisms makes possible the identification of such polymorphisms in human subjects and the pharmacogenetic use of this information for diagnosis and treatment. Such polymorphisms may be associated with, e.g., differential predisposition or susceptibility to various disease states (such as disorders involving inflammation or immune response) or a differential response to drug administration, and this genetic information can be used to tailor preventive or therapeutic treatment appropriately. For example, the existence of a polymorphism associated with a predisposition to inflammation or autoimmune disease makes possible the diagnosis of this condition in humans by identifying the presence of the polymorphism.

Polymorphisms can be identified in a variety of ways known in the art which all generally involve obtaining a sample from a patient, analyzing DNA from the sample, optionally involving isolation or amplification of the DNA, and identifying the presence of the polymorphism in the DNA. For example, PCR may be used to amplify an appropriate fragment of genomic DNA which may then be sequenced. Alternatively, the DNA may be subjected to allele-specific oligonucleotide hybridization (in which appropriate oligonucleotides are hybridized to the DNA under conditions permitting detection of a single base mismatch) or to a single nucleotide extension assay (in which an oligonucleotide that hybridizes immediately adjacent to the position of the polymorphism is extended with one or more labeled nucleotides). In addition, traditional restriction fragment length polymorphism analysis (using restriction enzymes that provide differential digestion of the genomic DNA depending on the presence or absence of the polymorphism) may be performed. Arrays with nucleotide sequences of the present invention can be used to detect polymorphisms. The array can comprise modified nucleotide sequences of the present invention in order to detect the nucleotide sequences of the present invention. In the alternative, any one of the nucleotide sequences of the present invention can be placed on the array to detect changes from those sequences.

Alternatively a polymorphism resulting in a change in the amino acid sequence could also be detected by detecting a corresponding change in amino acid sequence of the protein, e.g., by an antibody specific to the variant sequence.

4.10.20 ARTHRITIS AND INFLAMMATION

The immunosuppressive effects of the compositions of the invention against rheumatoid arthritis is determined in an experimental animal model system. The experimental model system is adjuvant induced arthritis in rats, and the protocol is described by J. Holoshitz, et at., 1983, Science, 219:56, or by B. Waksman et al., 1963, Int. Arch. Allergy Appl. Immunol., 23:129. Induction of the disease can be caused by a single injection, generally intradermally, of a suspension of killed Mycobacterium tuberculosis in complete Freund's adjuvant (CFA). The route of injection can vary, but rats may be injected at the base of the tail with an adjuvant mixture. The polypeptide is administered in phosphate buffered solution (PBS) at a dose of about 1-5 mg/kg. The control consists of administering PBS only.

The procedure for testing the effects of the test compound would consist of intradermally injecting killed Mycobacterium tuberculosis in CFA followed by immediately administering the test compound and subsequent treatment every other day until day 24. At 14, 15, 18, 20, 22, and 24 days after injection of Mycobacterium CFA, an overall arthritis score may be obtained as described by J. Holoskitz above. An analysis of the data would reveal that the test compound would have a dramatic affect on the swelling of the joints as measured by a decrease of the arthritis score.

4.11 THERAPEUTIC METHODS

The compositions (including polypeptide fragments, analogs, variants and antibodies or other binding partners or modulators including antisense polynucleotides) of the invention have numerous applications in a variety of therapeutic methods. Examples of therapeutic applications include, but are not limited to, those exemplified herein.

4.11.1 EXAMPLE

One embodiment of the invention is the administration of an effective amount of the polypeptides or other composition of the invention to individuals affected by a disease or disorder that can be modulated by regulating the peptides of the invention. While the mode of administration is not particularly important, parenteral administration is preferred. An exemplary mode of administration is to deliver an intravenous bolus. The dosage of the polypeptides or other composition of the invention will normally be determined by the prescribing physician. It is to be expected that the dosage will vary according to the age, weight, condition and response of the individual patient. Typically, the amount of polypeptide administered per dose will be in the range of about 0.01μg/kg to 100 mg/kg of body weight, with the preferred dose being about 0.1μg/kg to 10 mg/kg of patient body weight. For parenteral administration, polypeptides of the invention will be formulated in an injectable form combined with a pharmaceutically acceptable parenteral vehicle. Such vehicles are well known in the art and examples include water, saline, Ringer's solution, dextrose solution, and solutions consisting of small amounts of the human serum albumin. The vehicle may contain minor amounts of additives that maintain the isotonicity and stability of the polypeptide or other active ingredient. The preparation of such solutions is within the skill of the art.

4.12 PHARMACEUTICAL FORMULATIONS AND ROUTES OF ADMINISTRATION

A protein or other composition of the present invention (from whatever source derived, including without limitation from recombinant and non-recombinant sources and including antibodies and other binding partners of the polypeptides of the invention) may be administered to a patient in need, by itself, or in pharmaceutical compositions where it is mixed with suitable carriers or excipient(s) at doses to treat or ameliorate a variety of disorders. Such a composition may optionally contain (in addition to protein or other active ingredient and a carrier) diluents, fillers, salts, buffers, stabilizers, solubilizers, and other materials well known in the art. The term "pharmaceutically acceptable" means a non-toxic material that does not interfere with the effectiveness of the biological activity of the active ingredient(s). The characteristics of the carrier will depend on the route of administration. The pharmaceutical composition of the invention may also contain cytokines, lymphokines, or other hematopoietic factors such as M-CSF, GM-CSF, TNF, IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IFN, TNF0, TNF1, TNF2, G-CSF, Meg-CSF, thrombopoietin, stem cell factor, and erythropoietin. In further compositions, proteins of the invention may be combined with other agents beneficial to the treatment of the disease or disorder in question. These agents include various growth factors such as epidermal growth factor (EGF), platelet-derived growth factor (PDGF), transforming growth factors (TGF-α and TGF-β), insulin-like growth factor (IGF), as well as cytokines described herein.

The pharmaceutical composition may further contain other agents which either enhance the activity of the protein or other active ingredient or complement its activity or use in treatment. Such additional factors and/or agents may be included in the pharmaceutical composition to produce a synergistic effect with protein or other active ingredient of the invention, or to minimize side effects. Conversely, protein or other active ingredient of the present invention may be included in formulations of the particular clotting factor, cytokine, lymphokine, other hematopoietic factor, thrombolytic or anti-thrombotic factor, or anti- inflammatory agent to minimize side effects of the clotting factor, cytokine, lymphokine, other hematopoietic factor, thrombolytic or anti-thrombotic factor, or anti-inflammatory agent (such as IL-1Ra, IL-1 Hy1, IL-1 Hy2, anti-TNF, corticosteroids, immunosuppressive agents). A protein of the present invention may be active in multimers (e.g., heterodimers or homodimers) or complexes with itself or other proteins. As a result,

pharmaceutical compositions of the invention may comprise a protein of the invention in such multimeric or complexed form.

As an alternative to being included in a pharmaceutical composition of the invention including a first protein, a second protein or a therapeutic agent may be concurrently administered with the first protein (e.g., at the same time, or at differing times provided that therapeutic concentrations of the combination of agents is achieved at the treatment site). Techniques for formulation and administration of the compounds of the instant application may be found in "Remington's Pharmaceutical Sciences," Mack Publishing Co., Easton, PA, latest edition. A therapeutically effective dose further refers to that amount of the compound sufficient to result in amelioration of symptoms, *e.g.*, treatment, healing, prevention or amelioration of the relevant medical condition, or an increase in rate of treatment, healing, prevention or amelioration of such conditions. When applied to an individual active ingredient, administered alone, a therapeutically effective dose refers to that ingredient alone. When applied to a combination, a therapeutically effective dose refers to combined amounts of the active ingredients that result in the therapeutic effect, whether administered in combination, serially or simultaneously.

In practicing the method of treatment or use of the present invention, a therapeutically effective amount of protein or other active ingredient of the present invention is administered to a mammal having a condition to be treated. Protein or other active ingredient of the present invention may be administered in accordance with the method of the invention either alone or in combination with other therapies such as treatments employing cytokines, lymphokines or other hematopoietic factors. When co- administered with one or more cytokines, lymphokines or other hematopoietic factors, protein or other active ingredient of the present invention may be administered either simultaneously with the cytokine(s), lymphokine(s), other hematopoietic factor(s), thrombolytic or anti-thrombotic factors, or sequentially. If administered sequentially, the attending physician will decide on the appropriate sequence of administering protein or other active ingredient of the present invention in combination with cytokine(s), lymphokine(s), other hematopoietic factor(s), thrombolytic or anti-thrombotic factors.

4.12.1 ROUTES OF ADMINISTRATION

Suitable routes of administration may, for example, include oral, rectal, transmucosal, or intestinal administration; parenteral delivery, including intramuscular,

subcutaneous, intramedullary injections, as well as intrathecal, direct intraventricular, intravenous, intraperitoneal, intranasal, or intraocular injections. Administration of protein or other active ingredient of the present invention used in the pharmaceutical composition or to practice the method of the present invention can be carried out in a variety of conventional ways, such as oral ingestion, inhalation, topical application or cutaneous, subcutaneous, intraperitoneal, parenteral or intravenous injection. Intravenous administration to the patient is preferred.

Alternately, one may administer the compound in a local rather than systemic manner, for example, via injection of the compound directly into a arthritic joints or in fibrotic tissue, often in a depot or sustained release formulation. In order to prevent the scarring process frequently occurring as complication of glaucoma surgery, the compounds may be administered topically, for example, as eye drops. Furthermore, one may administer the drug in a targeted drug delivery system, for example, in a liposome coated with a specific antibody, targeting, for example, arthritic or fibrotic tissue. The liposomes will be targeted to and taken up selectively by the afflicted tissue.

The polypeptides of the invention are administered by any route that delivers an effective dosage to the desired site of action. The determination of a suitable route of administration and an effective dosage for a particular indication is within the level of skill in the art. Preferably for wound treatment, one administers the therapeutic compound directly to the site. Suitable dosage ranges for the polypeptides of the invention can be extrapolated from these dosages or from similar studies in appropriate animal models. Dosages can then be adjusted as necessary by the clinician to provide maximal therapeutic benefit.

4.12.2 COMPOSITIONS/FORMULATIONS

Pharmaceutical compositions for use in accordance with the present invention thus may be formulated in a conventional manner using one or more physiologically acceptable carriers comprising excipients and auxiliaries which facilitate processing of the active compounds into preparations which can be used pharmaceutically. These pharmaceutical compositions may be manufactured in a manner that is itself known, *e.g.*, by means of conventional mixing, dissolving, granulating, dragee-making, levigating, emulsifying, encapsulating, entrapping or lyophilizing processes. Proper formulation is dependent upon the route of administration chosen. When a therapeutically effective amount of protein or

other active ingredient of the present invention is administered orally, protein or other active ingredient of the present invention will be in the form of a tablet, capsule, powder, solution or elixir. When administered in tablet form, the pharmaceutical composition of the invention may additionally contain a solid carrier such as a gelatin or an adjuvant. The tablet, capsule, and powder contain from about 5 to 95% protein or other active ingredient of the present invention, and preferably from about 25 to 90% protein or other active ingredient of the present invention. When administered in liquid form, a liquid carrier such as water, petroleum, oils of animal or plant origin such as peanut oil, mineral oil, soybean oil, or sesame oil, or synthetic oils may be added. The liquid form of the pharmaceutical composition may further contain physiological saline solution, dextrose or other saccharide solution, or glycols such as ethylene glycol, propylene glycol or polyethylene glycol. When administered in liquid form, the pharmaceutical composition contains from about 0.5 to 90% by weight of protein or other active ingredient of the present invention, and preferably from about 1 to 50% protein or other active ingredient of the present invention.

When a therapeutically effective amount of protein or other active ingredient of the present invention is administered by intravenous, cutaneous or subcutaneous injection, protein or other active ingredient of the present invention will be in the form of a pyrogen-free, parenterally acceptable aqueous solution. The preparation of such parenterally acceptable protein or other active ingredient solutions, having due regard to pH, isotonicity, stability, and the like, is within the skill in the art. A preferred pharmaceutical composition for intravenous, cutaneous, or subcutaneous injection should contain, in addition to protein or other active ingredient of the present invention, an isotonic vehicle such as Sodium Chloride Injection, Ringer's Injection, Dextrose Injection, Dextrose and Sodium Chloride Injection, Lactated Ringer's Injection, or other vehicle as known in the art. The pharmaceutical composition of the present invention may also contain stabilizers, preservatives, buffers, antioxidants, or other additives known to those of skill in the art. For injection, the agents of the invention may be formulated in aqueous solutions, preferably in physiologically compatible buffers such as Hanks's solution, Ringer's solution, or physiological saline buffer. For transmucosal administration, penetrants appropriate to the barrier to be permeated are used in the formulation. Such penetrants are generally known in the art.

For oral administration, the compounds can be formulated readily by combining the active compounds with pharmaceutically acceptable carriers well known in the art. Such

carriers enable the compounds of the invention to be formulated as tablets, pills, dragees, capsules, liquids, gels, syrups, slurries, suspensions and the like, for oral ingestion by a patient to be treated. Pharmaceutical preparations for oral use can be obtained from a solid excipient, optionally grinding a resulting mixture, and processing the mixture of granules, after adding suitable auxiliaries, if desired, to obtain tablets or dragee cores. Suitable excipients are, in particular, fillers such as sugars, including lactose, sucrose, mannitol, or sorbitol; cellulose preparations such as, for example, maize starch, wheat starch, rice starch, potato starch, gelatin, gum tragacanth, methyl cellulose, hydroxypropylmethyl-cellulose, sodium carboxymethylcellulose, and/or polyvinylpyrrolidone (PVP). If desired, disintegrating agents may be added, such as the cross-linked polyvinyl pyrrolidone, agar, or alginic acid or a salt thereof such as sodium alginate. Dragee cores are provided with suitable coatings. For this purpose, concentrated sugar solutions may be used, which may optionally contain gum arabic, talc, polyvinyl pyrrolidone, carbopol gel, polyethylene glycol, and/or titanium dioxide, lacquer solutions, and suitable organic solvents or solvent mixtures. Dyestuffs or pigments may be added to the tablets or dragee coatings for identification or to characterize different combinations of active compound doses.

Pharmaceutical preparations which can be used orally include push-fit capsules made of gelatin, as well as soft, sealed capsules made of gelatin and a plasticizer, such as glycerol or sorbitol. The push-fit capsules can contain the active ingredients in admixture with filler such as lactose, binders such as starches, and/or lubricants such as talc or magnesium stearate and, optionally, stabilizers. In soft capsules, the active compounds may be dissolved or suspended in suitable liquids, such as fatty oils, liquid paraffin, or liquid polyethylene glycols. In addition, stabilizers may be added. All formulations for oral administration should be in dosages suitable for such administration. For buccal administration, the compositions may take the form of tablets or lozenges formulated in conventional manner.

For administration by inhalation, the compounds for use according to the present invention are conveniently delivered in the form of an aerosol spray presentation from pressurized packs or a nebuliser, with the use of a suitable propellant, *e.g.*, dichlorodifluoromethane, trichlorofluoromethane, dichlorotetrafluoroethane, carbon dioxide or other suitable gas. In the case of a pressurized aerosol the dosage unit may be determined by providing a valve to deliver a metered amount. Capsules and cartridges of, *e.g.*, gelatin for use in an inhaler or insufflator may be formulated containing a powder mix of the compound and a suitable powder base such as lactose or starch. The compounds may be

formulated for parenteral administration by injection, *e.g.*, by bolus injection or continuous infusion. Formulations for injection may be presented in unit dosage form, *e.g.*, in ampules or in multi-dose containers, with an added preservative. The compositions may take such forms as suspensions, solutions or emulsions in oily or aqueous vehicles, and may contain formulatory agents such as suspending, stabilizing and/or dispersing agents.

Pharmaceutical formulations for parenteral administration include aqueous solutions of the active compounds in water-soluble form. Additionally, suspensions of the active compounds may be prepared as appropriate oily injection suspensions. Suitable lipophilic solvents or vehicles include fatty oils such as sesame oil, or synthetic fatty acid esters, such as ethyl oleate or triglycerides, or liposomes. Aqueous injection suspensions may contain substances which increase the viscosity of the suspension, such as sodium carboxymethyl cellulose, sorbitol, or dextran. Optionally, the suspension may also contain suitable stabilizers or agents which increase the solubility of the compounds to allow for the preparation of highly concentrated solutions. Alternatively, the active ingredient may be in powder form for constitution with a suitable vehicle, *e.g.*, sterile pyrogen-free water, before use.

The compounds may also be formulated in rectal compositions such as suppositories or retention enemas, *e.g.*, containing conventional suppository bases such as cocoa butter or other glycerides. In addition to the formulations described previously, the compounds may also be formulated as a depot preparation. Such long acting formulations may be administered by implantation (for example subcutaneously or intramuscularly) or by intramuscular injection. Thus, for example, the compounds may be formulated with suitable polymeric or hydrophobic materials (for example as an emulsion in an acceptable oil) or ion exchange resins, or as sparingly soluble derivatives, for example, as a sparingly soluble salt.

A pharmaceutical carrier for the hydrophobic compounds of the invention is a co-solvent system comprising benzyl alcohol, a nonpolar surfactant, a water-miscible organic polymer, and an aqueous phase. The co-solvent system may be the VPD co-solvent system. VPD is a solution of 3% w/v benzyl alcohol, 8% w/v of the nonpolar surfactant polysorbate 80, and 65% w/v polyethylene glycol 300, made up to volume in absolute ethanol. The VPD co-solvent system (VPD:5W) consists of VPD diluted 1:1 with a 5% dextrose in water solution. This co-solvent system dissolves hydrophobic compounds well, and itself produces low toxicity upon systemic administration. Naturally, the proportions of a co-solvent system may be varied considerably without destroying its solubility and toxicity characteristics.

Furthermore, the identity of the co-solvent components may be varied: for example, other low-toxicity nonpolar surfactants may be used instead of polysorbate 80; the fraction size of polyethylene glycol may be varied; other biocompatible polymers may replace polyethylene glycol, e.g. polyvinyl pyrrolidone; and other sugars or polysaccharides may substitute for dextrose. Alternatively, other delivery systems for hydrophobic pharmaceutical compounds may be employed. Liposomes and emulsions are well known examples of delivery vehicles or carriers for hydrophobic drugs. Certain organic solvents such as dimethylsulfoxide also may be employed, although usually at the cost of greater toxicity. Additionally, the compounds may be delivered using a sustained-release system, such as semipermeable matrices of solid hydrophobic polymers containing the therapeutic agent. Various types of sustained-release materials have been established and are well known by those skilled in the art. Sustained-release capsules may, depending on their chemical nature, release the compounds for a few weeks up to over 100 days. Depending on the chemical nature and the biological stability of the therapeutic reagent, additional strategies for protein or other active ingredient stabilization may be employed.

The pharmaceutical compositions also may comprise suitable solid or gel phase carriers or excipients. Examples of such carriers or excipients include but are not limited to calcium carbonate, calcium phosphate, various sugars, starches, cellulose derivatives, gelatin, and polymers such as polyethylene glycols. Many of the active ingredients of the invention may be provided as salts with pharmaceutically compatible counter ions. Such pharmaceutically acceptable base addition salts are those salts which retain the biological effectiveness and properties of the free acids and which are obtained by reaction with inorganic or organic bases such as sodium hydroxide, magnesium hydroxide, ammonia, trialkylamine, dialkylamine, monoalkylamine, dibasic amino acids, sodium acetate, potassium benzoate, triethanol amine and the like.

The pharmaceutical composition of the invention may be in the form of a complex of the protein(s) or other active ingredient(s) of present invention along with protein or peptide antigens. The protein and/or peptide antigen will deliver a stimulatory signal to both B and T lymphocytes. B lymphocytes will respond to antigen through their surface immunoglobulin receptor. T lymphocytes will respond to antigen through the T cell receptor (TCR) following presentation of the antigen by MHC proteins. MHC and structurally related proteins including those encoded by class I and class II MHC genes on host cells will serve to present the peptide antigen(s) to T lymphocytes. The antigen components could also be

supplied as purified MHC-peptide complexes alone or with co-stimulatory molecules that can directly signal T cells. Alternatively antibodies able to bind surface immunoglobulin and other molecules on B cells as well as antibodies able to bind the TCR and other molecules on T cells can be combined with the pharmaceutical composition of the invention.

The pharmaceutical composition of the invention may be in the form of a liposome in which protein of the present invention is combined, in addition to other pharmaceutically acceptable carriers, with amphipathic agents such as lipids which exist in aggregated form as micelles, insoluble monolayers, liquid crystals, or lamellar layers in aqueous solution. Suitable lipids for liposomal formulation include, without limitation, monoglycerides, diglycerides, sulfatides, lysolecithins, phospholipids, saponin, bile acids, and the like. Preparation of such liposomal formulations is within the level of skill in the art, as disclosed, for example, in U.S. Patent Nos. 4,235,871; 4,501,728; 4,837,028; and 4,737,323, all of which are incorporated herein by reference.

The amount of protein or other active ingredient of the present invention in the pharmaceutical composition of the present invention will depend upon the nature and severity of the condition being treated, and on the nature of prior treatments which the patient has undergone. Ultimately, the attending physician will decide the amount of protein or other active ingredient of the present invention with which to treat each individual patient. Initially, the attending physician will administer low doses of protein or other active ingredient of the present invention and observe the patient's response. Larger doses of protein or other active ingredient of the present invention may be administered until the optimal therapeutic effect is obtained for the patient, and at that point the dosage is not increased further. It is contemplated that the various pharmaceutical compositions used to practice the method of the present invention should contain about 0.01 μg to about 100 mg (preferably about 0.1 μg to about 10 mg, more preferably about 0.1 μg to about 1 mg) of protein or other active ingredient of the present invention per kg body weight. For compositions of the present invention which are useful for bone, cartilage, tendon or ligament regeneration, the therapeutic method includes administering the composition topically, systematically, or locally as an implant or device. When administered, the therapeutic composition for use in this invention is, of course, in a pyrogen-free, physiologically acceptable form. Further, the composition may desirably be encapsulated or injected in a viscous form for delivery to the site of bone, cartilage or tissue damage. Topical administration may be suitable for wound healing and tissue repair. Therapeutically

useful agents other than a protein or other active ingredient of the invention which may also optionally be included in the composition as described above, may alternatively or additionally, be administered simultaneously or sequentially with the composition in the methods of the invention. Preferably for bone and/or cartilage formation, the composition would include a matrix capable of delivering the protein-containing or other active ingredient-containing composition to the site of bone and/or cartilage damage, providing a structure for the developing bone and cartilage and optimally capable of being resorbed into the body. Such matrices may be formed of materials presently in use for other implanted medical applications.

The choice of matrix material is based on biocompatibility, biodegradability, mechanical properties, cosmetic appearance and interface properties. The particular application of the compositions will define the appropriate formulation. Potential matrices for the compositions may be biodegradable and chemically defined calcium sulfate, tricalcium phosphate, hydroxyapatite, polylactic acid, polyglycolic acid and polyanhydrides. Other potential materials are biodegradable and biologically well-defined, such as bone or dermal collagen. Further matrices are comprised of pure proteins or extracellular matrix components. Other potential matrices are nonbiodegradable and chemically defined, such as sintered hydroxyapatite, bioglass, aluminates, or other ceramics. Matrices may be comprised of combinations of any of the above-mentioned types of material, such as polylactic acid and hydroxyapatite or collagen and tricalcium phosphate. The bioceramics may be altered in composition, such as in calcium-aluminate-phosphate and processing to alter pore size, particle size, particle shape, and biodegradability. Presently preferred is a 50:50 (mole weight) copolymer of lactic acid and glycolic acid in the form of porous particles having diameters ranging from 150 to 800 microns. In some applications, it will be useful to utilize a sequestering agent, such as carboxymethyl cellulose or autologous blood clot, to prevent the protein compositions from disassociating from the matrix.

A preferred family of sequestering agents is cellulosic materials such as alkylcelluloses (including hydroxyalkylcelluloses), including methylcellulose, ethylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, hydroxypropyl-methylcellulose, and carboxymethylcellulose, the most preferred being cationic salts of carboxymethylcellulose (CMC). Other preferred sequestering agents include hyaluronic acid, sodium alginate, poly(ethylene glycol), polyoxyethylene oxide, carboxyvinyl polymer and poly(vinyl alcohol). The amount of sequestering agent useful

herein is 0.5-20 wt %, preferably 1-10 wt % based on total formulation weight, which represents the amount necessary to prevent desorption of the protein from the polymer matrix and to provide appropriate handling of the composition, yet not so much that the progenitor cells are prevented from infiltrating the matrix, thereby providing the protein the opportunity to assist the osteogenic activity of the progenitor cells. In further compositions, proteins or other active ingredients of the invention may be combined with other agents beneficial to the treatment of the bone and/or cartilage defect, wound, or tissue in question. These agents include various growth factors such as epidermal growth factor (EGF), platelet derived growth factor (PDGF), transforming growth factors (TGF-α and TGF-β), and insulin-like growth factor (IGF).

The therapeutic compositions are also presently valuable for veterinary applications. Particularly domestic animals and thoroughbred horses, in addition to humans, are desired patients for such treatment with proteins or other active ingredients of the present invention. The dosage regimen of a protein-containing pharmaceutical composition to be used in tissue regeneration will be determined by the attending physician considering various factors which modify the action of the proteins, *e.g.*, amount of tissue weight desired to be formed, the site of damage, the condition of the damaged tissue, the size of a wound, type of damaged tissue (*e.g.*, bone), the patient's age, sex, and diet, the severity of any infection, time of administration and other clinical factors. The dosage may vary with the type of matrix used in the reconstitution and with inclusion of other proteins in the pharmaceutical composition. For example, the addition of other known growth factors, such as IGF I (insulin like growth factor I), to the final composition, may also effect the dosage. Progress can be monitored by periodic assessment of tissue/bone growth and/or repair, for example, X-rays, histomorphometric determinations and tetracycline labeling.

Polynucleotides of the present invention can also be used for gene therapy. Such polynucleotides can be introduced either in vivo or ex vivo into cells for expression in a mammalian subject. Polynucleotides of the invention may also be administered by other known methods for introduction of nucleic acid into a cell or organism (including, without limitation, in the form of viral vectors or naked DNA). Cells may also be cultured ex vivo in the presence of proteins of the present invention in order to proliferate or to produce a desired effect on or activity in such cells. Treated cells can then be introduced in vivo for therapeutic purposes.

4.12.3 EFFECTIVE DOSAGE

Pharmaceutical compositions suitable for use in the present invention include compositions wherein the active ingredients are contained in an effective amount to achieve its intended purpose. More specifically, a therapeutically effective amount means an amount effective to prevent development of or to alleviate the existing symptoms of the subject being treated. Determination of the effective amount is well within the capability of those skilled in the art, especially in light of the detailed disclosure provided herein. For any compound used in the method of the invention, the therapeutically effective dose can be estimated initially from appropriate in vitro assays. For example, a dose can be formulated in animal models to achieve a circulating concentration range that can be used to more accurately determine useful doses in humans. For example, a dose can be formulated in animal models to achieve a circulating concentration range that includes the IC_{50} as determined in cell culture (*i.e.*, the concentration of the test compound which achieves a half-maximal inhibition of the protein's biological activity). Such information can be used to more accurately determine useful doses in humans.

A therapeutically effective dose refers to that amount of the compound that results in amelioration of symptoms or a prolongation of survival in a patient. Toxicity and therapeutic efficacy of such compounds can be determined by standard pharmaceutical procedures in cell cultures or experimental animals, *e.g.*, for determining the LD_{50} (the dose lethal to 50% of the population) and the ED_{50} (the dose therapeutically effective in 50% of the population). The dose ratio between toxic and therapeutic effects is the therapeutic index and it can be expressed as the ratio between LD_{50} and ED_{50}. Compounds which exhibit high therapeutic indices are preferred. The data obtained from these cell culture assays and animal studies can be used in formulating a range of dosage for use in human. The dosage of such compounds lies preferably within a range of circulating concentrations that include the ED_{50} with little or no toxicity. The dosage may vary within this range depending upon the dosage form employed and the route of administration utilized. The exact formulation, route of administration and dosage can be chosen by the individual physician in view of the patient's condition. See, *e.g.*, Fingl et al., 1975, in "The Pharmacological Basis of Therapeutics", Ch. 1 p.1. Dosage amount and interval may be adjusted individually to provide plasma levels of the active moiety which are sufficient to maintain the desired effects, or minimal effective concentration (MEC). The MEC will vary for each compound but can be estimated from *in vitro* data. Dosages necessary to achieve the MEC will depend on individual characteristics

and route of administration. However, HPLC assays or bioassays can be used to determine plasma concentrations.

Dosage intervals can also be determined using MEC value. Compounds should be administered using a regimen which maintains plasma levels above the MEC for 10-90% of the time, preferably between 30-90% and most preferably between 50-90%. In cases of local administration or selective uptake, the effective local concentration of the drug may not be related to plasma concentration.

An exemplary dosage regimen for polypeptides or other compositions of the invention will be in the range of about 0.01 μg/kg to 100 mg/kg of body weight daily, with the preferred dose being about 0.1 μg/kg to 25 mg/kg of patient body weight daily, varying in adults and children. Dosing may be once daily, or equivalent doses may be delivered at longer or shorter intervals.

The amount of composition administered will, of course, be dependent on the subject being treated, on the subject's age and weight, the severity of the affliction, the manner of administration and the judgment of the prescribing physician.

4.12.4 PACKAGING

The compositions may, if desired, be presented in a pack or dispenser device which may contain one or more unit dosage forms containing the active ingredient. The pack may, for example, comprise metal or plastic foil, such as a blister pack. The pack or dispenser device may be accompanied by instructions for administration. Compositions comprising a compound of the invention formulated in a compatible pharmaceutical carrier may also be prepared, placed in an appropriate container, and labeled for treatment of an indicated condition.

4.13 ANTIBODIES

Also included in the invention are antibodies to proteins, or fragments of proteins of the invention. The term "antibody" as used herein refers to immunoglobulin molecules and immunologically active portions of immunoglobulin (Ig) molecules, i.e., molecules that contain an antigen-binding site that specifically binds (immunoreacts with) an antigen. Such antibodies include, but are not limited to, polyclonal, monoclonal, chimeric, single chain, F_{ab}, $F_{ab'}$ and $F_{(ab')2}$ fragments, and an F_{ab} expression library. In general, an antibody molecule obtained from humans relates to any of the classes IgG, IgM, IgA, IgE and IgD, which differ

from one another by the nature of the heavy chain present in the molecule. Certain classes have subclasses as well, such as IgG_1, IgG_2, and others. Furthermore, in humans, the light chain may be a kappa chain or a lambda chain. Reference herein to antibodies includes a reference to all such classes, subclasses and types of human antibody species.

An isolated related protein of the invention may be intended to serve as an antigen, or a portion or fragment thereof, and additionally can be used as an immunogen to generate antibodies that immunospecifically bind the antigen, using standard techniques for polyclonal and monoclonal antibody preparation. The full-length protein can be used or, alternatively, the invention provides antigenic peptide fragments of the antigen for use as immunogens. An antigenic peptide fragment comprises at least 6 amino acid residues of the amino acid sequence of the full length protein, such as an amino acid sequence shown in SEQ ID NO: 912-1822, or 2479-3134, or Tables 3A, 3B, 5, or 6, and encompasses an epitope thereof such that an antibody raised against the peptide forms a specific immune complex with the full length protein or with any fragment that contains the epitope. Preferably, the antigenic peptide comprises at least 10 amino acid residues, or at least 15 amino acid residues, or at least 20 amino acid residues, or at least 30 amino acid residues. Preferred epitopes encompassed by the antigenic peptide are regions of the protein that are located on its surface; commonly these are hydrophilic regions.

In certain embodiments of the invention, at least one epitope encompassed by the antigenic peptide is a surface region of the protein, *e.g.*, a hydrophilic region. A hydrophobicity analysis of the human related protein sequence will indicate which regions of a related protein are particularly hydrophilic and, therefore, are likely to encode surface residues useful for targeting antibody production. As a means for targeting antibody production, hydropathy plots showing regions of hydrophilicity and hydrophobicity may be generated by any method well known in the art, including, for example, the Kyte Doolittle or the Hopp Woods methods, either with or without Fourier transformation. See, *e.g.*, Hopp and Woods, 1981, Proc. Nat. Acad. Sci. USA 78: 3824-3828; Kyte and Doolittle 1982, J. Mol. Biol. 157: 105-142, each of which is incorporated herein by reference in its entirety. Antibodies that are specific for one or more domains within an antigenic protein, or derivatives, fragments, analogs or homologs thereof, are also provided herein.

A protein of the invention, or a derivative, fragment, analog, homolog or ortholog thereof, may be utilized as an immunogen in the generation of antibodies that immunospecifically bind these protein components.

The term "specific for" indicates that the variable regions of the antibodies of the invention recognize and bind polypeptides of the invention exclusively (*i.e.*, able to distinguish the polypeptide of the invention from other similar polypeptides despite sequence identity, homology, or similarity found in the family of polypeptides), but may also interact with other proteins (for example, *S. aureus* protein A or other antibodies in ELISA techniques) through interactions with sequences outside the variable region of the antibodies, and in particular, in the constant region of the molecule. Screening assays to determine binding specificity of an antibody of the invention are well known and routinely practiced in the art. For a comprehensive discussion of such assays, see Harlow et al. (Eds), Antibodies A Laboratory Manual; Cold Spring Harbor Laboratory; Cold Spring Harbor, NY (1988), Chapter 6. Antibodies that recognize and bind fragments of the polypeptides of the invention are also contemplated, provided that the antibodies are first and foremost specific for, as defined above, full-length polypeptides of the invention. As with antibodies that are specific for full length polypeptides of the invention, antibodies of the invention that recognize fragments are those which can distinguish polypeptides from the same family of polypeptides despite inherent sequence identity, homology, or similarity found in the family of proteins.

Antibodies of the invention are useful for, for example, therapeutic purposes (by modulating activity of a polypeptide of the invention), diagnostic purposes to detect or quantitate a polypeptide of the invention, as well as purification of a polypeptide of the invention. Kits comprising an antibody of the invention for any of the purposes described herein are also comprehended. In general, a kit of the invention also includes a control antigen for which the antibody is immunospecific. The invention further provides a hybridoma that produces an antibody according to the invention. Antibodies of the invention are useful for detection and/or purification of the polypeptides of the invention.

Monoclonal antibodies binding to the protein of the invention may be useful diagnostic agents for the immunodetection of the protein. Neutralizing monoclonal antibodies binding to the protein may also be useful therapeutics for both conditions associated with the protein and also in the treatment of some forms of cancer where abnormal expression of the protein is involved. In the case of cancerous cells or leukemic cells, neutralizing monoclonal antibodies against the protein may be useful in detecting and preventing the metastatic spread of the cancerous cells, which may be mediated by the protein.

The labeled antibodies of the present invention can be used for *in vitro*, *in vivo*, and *in situ* assays to identify cells or tissues in which a fragment of the polypeptide of interest is expressed. The antibodies may also be used directly in therapies or other diagnostics. The present invention further provides the above-described antibodies immobilized on a solid support. Examples of such solid supports include plastics such as polycarbonate, complex carbohydrates such as agarose and Sepharose®, acrylic resins and such as polyacrylamide and latex beads. Techniques for coupling antibodies to such solid supports are well known in the art (Weir, D.M. et al., "Handbook of Experimental Immunology" 4th Ed., Blackwell Scientific Publications, Oxford, England, Chapter 10 (1986); Jacoby, W.D. et al., Meth. Enzym. 34 Academic Press, N.Y. (1974)). The immobilized antibodies of the present invention can be used for *in vitro*, *in vivo*, and *in situ* assays as well as for immuno-affinity purification of the proteins of the present invention.

Various procedures known within the art may be used for the production of polyclonal or monoclonal antibodies directed against a protein of the invention, or against derivatives, fragments, analogs homologs or orthologs thereof (see, for example, Antibodies: A Laboratory Manual, Harlow E, and Lane D, 1988, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, incorporated herein by reference). Some of these antibodies are discussed below.

4.13.1 POLYCLONAL ANTIBODIES

For the production of polyclonal antibodies, various suitable host animals (e.g., rabbit, goat, mouse or other mammal) may be immunized by one or more injections with the native protein, a synthetic variant thereof, or a derivative of the foregoing. An appropriate immunogenic preparation can contain, for example, the naturally occurring immunogenic protein, a chemically synthesized polypeptide representing the immunogenic protein, or a recombinantly expressed immunogenic protein. Furthermore, the protein may be conjugated to a second protein known to be immunogenic in the mammal being immunized. Examples of such immunogenic proteins include but are not limited to keyhole limpet hemocyanin, serum albumin, bovine thyroglobulin, and soybean trypsin inhibitor. The preparation can further include an adjuvant. Various adjuvants used to increase the immunological response include, but are not limited to, Freund's (complete and incomplete), mineral gels (e.g., aluminum hydroxide), surface-active substances (e.g., lysolecithin, pluronic polyols, polyanions, peptides, oil emulsions, dinitrophenol, etc.), adjuvants usable in humans such as

Bacille Calmette-Guerin and Corynebacterium parvum, or similar immunostimulatory agents. Additional examples of adjuvants that can be employed include MPL-TDM adjuvant (monophosphoryl Lipid A, synthetic trehalose dicorynomycolate).

The polyclonal antibody molecules directed against the immunogenic protein can be isolated from the mammal (e.g., from the blood) and further purified by well known techniques, such as affinity chromatography using protein A or protein G, which provide primarily the IgG fraction of immune serum. Subsequently, or alternatively, the specific antigen which is the target of the immunoglobulin sought, or an epitope thereof, may be immobilized on a column to purify the immune specific antibody by immunoaffinity chromatography. Purification of immunoglobulins is discussed, for example, by D. Wilkinson (The Scientist, published by The Scientist, Inc., Philadelphia PA, Vol. 14, No. 8 (April 17, 2000), pp. 25-28).

4.13.2 MONOCLONAL ANTIBODIES

The term "monoclonal antibody" (MAb) or "monoclonal antibody composition", as used herein, refers to a population of antibody molecules that contain only one molecular species of antibody molecule consisting of a unique light chain gene product and a unique heavy chain gene product. In particular, the complementarity determining regions (CDRs) of the monoclonal antibody are identical in all the molecules of the population. MAbs thus contain an antigen-binding site capable of immunoreacting with a particular epitope of the antigen characterized by a unique binding affinity for it.

Monoclonal antibodies can be prepared using hybridoma methods, such as those described by Kohler and Milstein, Nature, 256, 495 (1975). In a hybridoma method, a mouse, hamster, or other appropriate host animal, is typically immunized with an immunizing agent to elicit lymphocytes that produce or are capable of producing antibodies that will specifically bind to the immunizing agent. Alternatively, the lymphocytes can be immunized in vitro.

The immunizing agent will typically include the protein antigen, a fragment thereof or a fusion protein thereof. Generally, either peripheral blood lymphocytes are used if cells of human origin are desired, or spleen cells or lymph node cells are used if non-human mammalian sources are desired. The lymphocytes are then fused with an immortalized cell line using a suitable fusing agent, such as polyethylene glycol, to form a hybridoma cell (Goding, Monoclonal Antibodies: Principles and Practice, Academic Press, (1986) pp. 59-

103). Immortalized cell lines are usually transformed mammalian cells, particularly myeloma cells of rodent, bovine and human origin. Usually, rat or mouse myeloma cell lines are employed. The hybridoma cells can be cultured in a suitable culture medium that preferably contains one or more substances that inhibit the growth or survival of the unfused, immortalized cells. For example, if the parental cells lack the enzyme hypoxanthine guanine phosphoribosyl transferase (HGPRT or HPRT), the culture medium for the hybridomas typically will include hypoxanthine, aminopterin, and thymidine ("HAT medium"), which substances prevent the growth of HGPRT-deficient cells.

Preferred immortalized cell lines are those that fuse efficiently, support stable high level expression of antibody by the selected antibody-producing cells, and are sensitive to a medium such as HAT medium. More preferred immortalized cell lines are murine myeloma lines, which can be obtained, for instance, from the Salk Institute Cell Distribution Center, San Diego, California and the American Type Culture Collection, Manassas, Virginia. Human myeloma and mouse-human heteromyeloma cell lines also have been described for the production of human monoclonal antibodies (Kozbor, J. Immunol., 133:3001 (1984); Brodeur et al., Monoclonal Antibody Production Techniques and Applications, Marcel Dekker, Inc., New York, (1987) pp. 51-63).

The culture medium in which the hybridoma cells are cultured can then be assayed for the presence of monoclonal antibodies directed against the antigen. Preferably, the binding specificity of monoclonal antibodies produced by the hybridoma cells is determined by immunoprecipitation or by an in vitro binding assay, such as radioimmunoassay (RIA) or enzyme-linked immunoabsorbent assay (ELISA). Such techniques and assays are known in the art. The binding affinity of the monoclonal antibody can, for example, be determined by the Scatchard analysis of Munson and Pollard, Anal. Biochem., 107, 220 (1980). Preferably, antibodies having a high degree of specificity and a high binding affinity for the target antigen are isolated.

After the desired hybridoma cells are identified, the clones can be subcloned by limiting dilution procedures and grown by standard methods. Suitable culture media for this purpose include, for example, Dulbecco's Modified Eagle's Medium and RPMI-1640 medium. Alternatively, the hybridoma cells can be grown in vivo as ascites in a mammal.

The monoclonal antibodies secreted by the subclones can be isolated or purified from the culture medium or ascites fluid by conventional immunoglobulin purification procedures

such as, for example, protein A-Sepharose, hydroxylapatite chromatography, gel electrophoresis, dialysis, or affinity chromatography.

The monoclonal antibodies can also be made by recombinant DNA methods, such as those described in U.S. Patent No. 4,816,567. DNA encoding the monoclonal antibodies of the invention can be readily isolated and sequenced using conventional procedures (e.g., by using oligonucleotide probes that are capable of binding specifically to genes encoding the heavy and light chains of murine antibodies). The hybridoma cells of the invention serve as a preferred source of such DNA. Once isolated, the DNA can be placed into expression vectors, which are then transfected into host cells such as simian COS cells, Chinese hamster ovary (CHO) cells, or myeloma cells that do not otherwise produce immunoglobulin protein, to obtain the synthesis of monoclonal antibodies in the recombinant host cells. The DNA also can be modified, for example, by substituting the coding sequence for human heavy and light chain constant domains in place of the homologous murine sequences (U.S. Patent No. 4,816,567; Morrison, Nature 368, 812-13 (1994)) or by covalently joining to the immunoglobulin coding sequence all or part of the coding sequence for a non-immunoglobulin polypeptide. Such a non-immunoglobulin polypeptide can be substituted for the constant domains of an antibody of the invention, or can be substituted for the variable domains of one antigen-combining site of an antibody of the invention to create a chimeric bivalent antibody.

4.13.3 HUMANIZED ANTIBODIES

The antibodies directed against the protein antigens of the invention can further comprise humanized antibodies or human antibodies. These antibodies are suitable for administration to humans without engendering an immune response by the human against the administered immunoglobulin. Humanized forms of antibodies are chimeric immunoglobulins, immunoglobulin chains or fragments thereof (such as Fv, Fab, Fab', $F(ab')_2$ or other antigen-binding subsequences of antibodies) that are principally comprised of the sequence of a human immunoglobulin, and contain minimal sequence derived from a non-human immunoglobulin. Humanization can be performed following the method of Winter and co-workers (Jones et al., Nature, 321, 522-525 (1986); Riechmann et al., Nature, 332, 323-327 (1988); Verhoeyen et al., Science, 239, 1534-1536 (1988)), by substituting rodent CDRs or CDR sequences for the corresponding sequences of a human antibody. (See also U.S. Patent No. 5,225,539). In some instances, Fv framework residues of the human

immunoglobulin are replaced by corresponding non-human residues. Humanized antibodies can also comprise residues that are found neither in the recipient antibody nor in the imported CDR or framework sequences. In general, the humanized antibody will comprise substantially all of at least one, and typically two, variable domains, in which all or substantially all of the CDR regions correspond to those of a non-human immunoglobulin and all or substantially all of the framework regions are those of a human immunoglobulin consensus sequence. The humanized antibody optimally also will comprise at least a portion of an immunoglobulin constant region (Fc), typically that of a human immunoglobulin (Jones et al., 1986; Riechmann et al., 1988; and Presta, Curr. Op. Struct. Biol., 2, 593-596 (1992)).

4.13.4 HUMAN ANTIBODIES

Fully human antibodies relate to antibody molecules in which essentially the entire sequences of both the light chain and the heavy chain, including the CDRs, arise from human genes. Such antibodies are termed "human antibodies", or "fully human antibodies" herein. Human monoclonal antibodies can be prepared by the trioma technique; the human B-cell hybridoma technique (see Kozbor, et al., 1983 Immunol Today 4: 72) and the EBV hybridoma technique to produce human monoclonal antibodies (see Cole, et al., 1985 In: Monoclonal Antibodies and Cancer Therapy, Alan R. Liss, Inc., pp. 77-96). Human monoclonal antibodies may be utilized in the practice of the present invention and may be produced by using human hybridomas (see Cote, et al., 1983. Proc Natl Acad Sci USA 80, 2026-2030) or by transforming human B-cells with Epstein Barr Virus in vitro (see Cole, et al., 1985 In: Monoclonal Antibodies and Cancer Therapy, Alan R. Liss, Inc., pp. 77-96).

In addition, human antibodies can also be produced using additional techniques, including phage display libraries (Hoogenboom and Winter, J. Mol. Biol., 227, 381 (1991); Marks et al., J. Mol. Biol., 222:581 (1991)). Similarly, human antibodies can be made by introducing human immunoglobulin loci into transgenic animals, e.g., mice in which the endogenous immunoglobulin genes have been partially or completely inactivated. Upon challenge, human antibody production is observed, which closely resembles that seen in humans in all respects, including gene rearrangement, assembly, and antibody repertoire. This approach is described, for example, in U.S. Patent Nos. 5,545,807; 5,545,806; 5,569,825; 5,625,126; 5,633,425; 5,661,016, and in Marks et al. (Bio/Technology 10, 779-783 (1992)); Lonberg et al. (Nature 368, 856-859 (1994)); Morrison (Nature 368, 812-13

(1994)); Fishwild et al, (Nature Biotechnology 14, 845-51 (1996)); Neuberger (Nature Biotechnology 14, 826 (1996)); and Lonberg and Huszar (Intern. Rev. Immunol. 13, 65-93 (1995)).

Human antibodies may additionally be produced using transgenic nonhuman animals that are modified so as to produce fully human antibodies rather than the animal's endogenous antibodies in response to challenge by an antigen. (See PCT publication WO94/02602). The endogenous genes encoding the heavy and light immunoglobulin chains in the nonhuman host have been incapacitated, and active loci encoding human heavy and light chain immunoglobulins are inserted into the host's genome. The human genes are incorporated, for example, using yeast artificial chromosomes containing the requisite human DNA segments. An animal which provides all the desired modifications is then obtained as progeny by crossbreeding intermediate transgenic animals containing fewer than the full complement of the modifications. The preferred embodiment of such a nonhuman animal is a mouse, and is termed the Xenomouse™ as disclosed in PCT publications WO 96/33735 and WO 96/34096. This animal produces B cells that secrete fully human immunoglobulins. The antibodies can be obtained directly from the animal after immunization with an immunogen of interest, as, for example, a preparation of a polyclonal antibody, or alternatively from immortalized B cells derived from the animal, such as hybridomas producing monoclonal antibodies. Additionally, the genes encoding the immunoglobulins with human variable regions can be recovered and expressed to obtain the antibodies directly, or can be further modified to obtain analogs of antibodies such as, for example, single chain Fv molecules.

An example of a method of producing a nonhuman host, exemplified as a mouse, lacking expression of an endogenous immunoglobulin heavy chain is disclosed in U.S. Patent No. 5,939,598. It can be obtained by a method including deleting the J segment genes from at least one endogenous heavy chain locus in an embryonic stem cell to prevent rearrangement of the locus and to prevent formation of a transcript of a rearranged immunoglobulin heavy chain locus, the deletion being effected by a targeting vector containing a gene encoding a selectable marker; and producing from the embryonic stem cell a transgenic mouse whose somatic and germ cells contain the gene encoding the selectable marker.

A method for producing an antibody of interest, such as a human antibody, is disclosed in U.S. Patent No. 5,916,771. It includes introducing an expression vector that

contains a nucleotide sequence encoding a heavy chain into one mammalian host cell in culture, introducing an expression vector containing a nucleotide sequence encoding a light chain into another mammalian host cell, and fusing the two cells to form a hybrid cell. The hybrid cell expresses an antibody containing the heavy chain and the light chain.

In a further improvement on this procedure, a method for identifying a clinically relevant epitope on an immunogen, and a correlative method for selecting an antibody that binds immunospecifically to the relevant epitope with high affinity, are disclosed in PCT publication WO 99/53049.

4.13.5 FAB FRAGMENTS AND SINGLE CHAIN ANTIBODIES

According to the invention, techniques can be adapted for the production of single-chain antibodies specific to an antigenic protein of the invention (see e.g., U.S. Patent No. 4,946,778). In addition, methods can be adapted for the construction of F_{ab} expression libraries (see e.g., Huse, et al., 1989 Science 246, 1275-1281) to allow rapid and effective identification of monoclonal F_{ab} fragments with the desired specificity for a protein or derivatives, fragments, analogs or homologs thereof. Antibody fragments that contain the idiotypes to a protein antigen may be produced by techniques known in the art including, but not limited to: (i) an $F_{(ab')2}$ fragment produced by pepsin digestion of an antibody molecule; (ii) an F_{ab} fragment generated by reducing the disulfide bridges of an $F_{(ab')2}$ fragment; (iii) an F_{ab} fragment generated by the treatment of the antibody molecule with papain and a reducing agent and (iv) F_v fragments.

4.13.6 BISPECIFIC ANTIBODIES

Bispecific antibodies are monoclonal, preferably human or humanized, antibodies that have binding specificities for at least two different antigens. In the present case, one of the binding specificities is for an antigenic protein of the invention. The second binding target is any other antigen, and advantageously is a cell-surface protein or receptor or receptor subunit.

Methods for making bispecific antibodies are known in the art. Traditionally, the recombinant production of bispecific antibodies is based on the co-expression of two immunoglobulin heavy-chain/light-chain pairs, where the two heavy chains have different specificities (Milstein and Cuello, Nature, 305, 537-539 (1983)). Because of the random assortment of immunoglobulin heavy and light chains, these hybridomas (quadromas)

produce a potential mixture of ten different antibody molecules, of which only one has the correct bispecific structure. The purification of the correct molecule is usually accomplished by affinity chromatography steps. Similar procedures are disclosed in WO 93/08829, published 13 May 1993, and in Traunecker *et al.*, 1991 *EMBO J.*, 10, 3655-3659.

Antibody variable domains with the desired binding specificities (antibody-antigen combining sites) can be fused to immunoglobulin constant domain sequences. The fusion preferably is with an immunoglobulin heavy-chain constant domain, comprising at least part of the hinge, CH2, and CH3 regions. It is preferred to have the first heavy-chain constant region (CH1) containing the site necessary for light-chain binding present in at least one of the fusions. DNAs encoding the immunoglobulin heavy-chain fusions and, if desired, the immunoglobulin light chain, are inserted into separate expression vectors, and are co-transfected into a suitable host organism. For further details of generating bispecific antibodies see, for example, Suresh et al., Methods in Enzymology, 121, 210 (1986).

According to another approach described in WO 96/27011, the interface between a pair of antibody molecules can be engineered to maximize the percentage of heterodimers that are recovered from recombinant cell culture. The preferred interface comprises at least a part of the CH3 region of an antibody constant domain. In this method, one or more small amino acid side chains from the interface of the first antibody molecule are replaced with larger side chains (e.g. tyrosine or tryptophan). Compensatory "cavities" of identical or similar size to the large side chain(s) are created on the interface of the second antibody molecule by replacing large amino acid side chains with smaller ones (e.g. alanine or threonine). This provides a mechanism for increasing the yield of the heterodimer over other unwanted end-products such as homodimers.

Bispecific antibodies can be prepared as full-length antibodies or antibody fragments (e.g. $F(ab')_2$ bispecific antibodies). Techniques for generating bispecific antibodies from antibody fragments have been described in the literature. For example, bispecific antibodies can be prepared using chemical linkage. Brennan et al., Science 229, 81 (1985) describe a procedure wherein intact antibodies are proteolytically cleaved to generate $F(ab')_2$ fragments. These fragments are reduced in the presence of the dithiol complexing agent sodium arsenite to stabilize vicinal dithiols and prevent intermolecular disulfide formation. The Fab' fragments generated are then converted to thionitrobenzoate (TNB) derivatives. One of the Fab'-TNB derivatives is then reconverted to the Fab'-thiol by reduction with mercaptoethylamine and is mixed with an equimolar amount of the other Fab'-TNB

derivative to form the bispecific antibody. The bispecific antibodies produced can be used as agents for the selective immobilization of enzymes.

Additionally, Fab' fragments can be directly recovered from E. coli and chemically coupled to form bispecific antibodies. Shalaby et al., J. Exp. Med. 175, 217-225 (1992) describe the production of a fully humanized bispecific antibody $F(ab')_2$ molecule. Each Fab' fragment was separately secreted from E. coli and subjected to directed chemical coupling in vitro to form the bispecific antibody. The bispecific antibody thus formed was able to bind to cells overexpressing the ErbB2 receptor and normal human T cells, as well as trigger the lytic activity of human cytotoxic lymphocytes against human breast tumor targets.

Various techniques for making and isolating bispecific antibody fragments directly from recombinant cell culture have also been described. For example, bispecific antibodies have been produced using leucine zippers. Kostelny et al., J. Immunol. 148(5), 1547-1553 (1992). The leucine zipper peptides from the Fos and Jun proteins were linked to the Fab' portions of two different antibodies by gene fusion. The antibody homodimers were reduced at the hinge region to form monomers and then re-oxidized to form the antibody heterodimers. This method can also be utilized for the production of antibody homodimers. The "diabody" technology described by Hollinger et al., Proc. Natl. Acad. Sci. USA 90, 6444-6448 (1993) has provided an alternative mechanism for making bispecific antibody fragments. The fragments comprise a heavy-chain variable domain (V_H) connected to a light-chain variable domain (V_L) by a linker which is too short to allow pairing between the two domains on the same chain. Accordingly, the V_H and V_L domains of one fragment are forced to pair with the complementary V_L and V_H domains of another fragment, thereby forming two antigen-binding sites. Another strategy for making bispecific antibody fragments by the use of single-chain Fv (sFv) dimers has also been reported. See, Gruber et al., J. Immunol. 152, 5368 (1994).

Antibodies with more than two valencies are contemplated. For example, trispecific antibodies can be prepared. Tutt et al., J. Immunol. 147, 60 (1991).

Exemplary bispecific antibodies can bind to two different epitopes, at least one of which originates in the protein antigen of the invention. Alternatively, an anti-antigenic arm of an immunoglobulin molecule can be combined with an arm which binds to a triggering molecule on a leukocyte such as a T-cell receptor molecule (e.g. CD2, CD3, CD28, or B7), or Fc receptors for IgG (FcγR), such as FcγRI (CD64), FcγRII (CD32) and FcγRIII (CD16) so as to focus cellular defense mechanisms to the cell expressing the particular antigen.

Bispecific antibodies can also be used to direct cytotoxic agents to cells which express a particular antigen. These antibodies possess an antigen-binding arm and an arm which binds a cytotoxic agent or a radionuclide chelator, such as EOTUBE, DPTA, DOTA, or TETA. Another bispecific antibody of interest binds the protein antigen described herein and further binds tissue factor (TF).

4.13.7 HETEROCONJUGATE ANTIBODIES

Heteroconjugate antibodies are also within the scope of the present invention. Heteroconjugate antibodies are composed of two covalently joined antibodies. Such antibodies have, for example, been proposed to target immune system cells to unwanted cells (U.S. Patent No. 4,676,980), and for treatment of HIV infection (WO 91/00360; WO 92/200373; EP 03089). It is contemplated that the antibodies can be prepared in vitro using known methods in synthetic protein chemistry, including those involving crosslinking agents. For example, immunotoxins can be constructed using a disulfide exchange reaction or by forming a thioether bond. Examples of suitable reagents for this purpose include iminothiolate and methyl-4-mercaptobutyrimidate and those disclosed, for example, in U.S. Patent No. 4,676,980.

4.13.8 EFFECTOR FUNCTION ENGINEERING

It can be desirable to modify the antibody of the invention with respect to effector function, so as to enhance, e.g., the effectiveness of the antibody in treating cancer. For example, cysteine residue(s) can be introduced into the Fc region, thereby allowing interchain disulfide bond formation in this region. The homodimeric antibody thus generated can have improved internalization capability and/or increased complement-mediated cell killing and antibody-dependent cellular cytotoxicity (ADCC). See Caron et al., J. Exp Med., 176, 1191-1195 (1992) and Shopes, J. Immunol., 148, 2918-2922 (1992). Homodimeric antibodies with enhanced anti-tumor activity can also be prepared using heterobifunctional cross-linkers as described in Wolff et al. Cancer Research, 53, 2560-2565 (1993). Alternatively, an antibody can be engineered that has dual Fc regions and can thereby have enhanced complement lysis and ADCC capabilities. See Stevenson et al., Anti-Cancer Drug Design, 3, 219-230 (1989).

4.13.9 IMMUNOCONJUGATES

The invention also pertains to immunoconjugates comprising an antibody conjugated to a cytotoxic agent such as a chemotherapeutic agent, toxin (e.g., an enzymatically active toxin of bacterial, fungal, plant, or animal origin, or fragments thereof), or a radioactive isotope (i.e., a radioconjugate).

Chemotherapeutic agents useful in the generation of such immunoconjugates have been described above. Enzymatically active toxins and fragments thereof that can be used include diphtheria A chain, nonbinding active fragments of diphtheria toxin, exotoxin A chain (from Pseudomonas aeruginosa), ricin A chain, abrin A chain, modeccin A chain, alpha-sarcin, Aleurites fordii proteins, dianthin proteins, Phytolaca americana proteins (PAPI, PAPII, and PAP-S), momordica charantia inhibitor, curcin, crotin, sapaonaria officinalis inhibitor, gelonin, mitogellin, restrictocin, phenomycin, enomycin, and the tricothecenes. A variety of radionuclides are available for the production of radioconjugated antibodies. Examples include ^{212}Bi, ^{131}I, ^{131}In, ^{90}Y, and ^{186}Re.

Conjugates of the antibody and cytotoxic agent are made using a variety of bifunctional protein-coupling agents such as N-succinimidyl-3-(2-pyridyldithiol) propionate (SPDP), iminothiolane (IT), bifunctional derivatives of imidoesters (such as dimethyl adipimidate HCL), active esters (such as disuccinimidyl suberate), aldehydes (such as glutareldehyde), bis-azido compounds (such as bis (p-azidobenzoyl) hexanediamine), bis-diazonium derivatives (such as bis-(p-diazoniumbenzoyl)-ethylenediamine), diisocyanates (such as tolyene 2,6-diisocyanate), and bis-active fluorine compounds (such as 1,5-difluoro-2,4-dinitrobenzene). For example, a ricin immunotoxin can be prepared as described in Vitetta et al., Science, 238: 1098 (1987). Carbon-14-labeled 1-isothiocyanatobenzyl-3-methyldiethylene triaminepentaacetic acid (MX-DTPA) is an exemplary chelating agent for conjugation of radionucleotide to the antibody. See WO94/11026.

In another embodiment, the antibody can be conjugated to a "receptor" (such streptavidin) for utilization in tumor pretargeting wherein the antibody-receptor conjugate is administered to the patient, followed by removal of unbound conjugate from the circulation using a clearing agent and then administration of a "ligand" (e.g., avidin) that is in turn conjugated to a cytotoxic agent.

4.14 COMPUTER READABLE SEQUENCES

In one application of this embodiment, a nucleotide sequence of the present invention can be recorded on computer readable media. As used herein, "computer readable media" refers to any medium which can be read and accessed directly by a computer. Such media include, but are not limited to: magnetic storage media, such as floppy discs, hard disc storage medium, and magnetic tape; optical storage media such as CD-ROM; electrical storage media such as RAM and ROM; and hybrids of these categories such as magnetic/optical storage media. A skilled artisan can readily appreciate how any of the presently known computer readable mediums can be used to create a manufacture comprising computer readable medium having recorded thereon a nucleotide sequence of the present invention. As used herein, "recorded" refers to a process for storing information on computer readable medium. A skilled artisan can readily adopt any of the presently known methods for recording information on computer readable medium to generate manufactures comprising the nucleotide sequence information of the present invention.

A variety of data storage structures are available to a skilled artisan for creating a computer readable medium having recorded thereon a nucleotide sequence of the present invention. The choice of the data storage structure will generally be based on the means chosen to access the stored information. In addition, a variety of data processor programs and formats can be used to store the nucleotide sequence information of the present invention on computer readable medium. The sequence information can be represented in a word processing text file, formatted in commercially-available software such as WordPerfect and Microsoft Word, or represented in the form of an ASCII file, stored in a database application, such as DB2, Sybase, Oracle, or the like. A skilled artisan can readily adapt any number of data processor structuring formats (*e.g.* text file or database) in order to obtain computer readable medium having recorded thereon the nucleotide sequence information of the present invention.

By providing any of the nucleotide sequences SEQ ID NO: 1-911, or 1823-2478 or a representative fragment thereof; or a nucleotide sequence at least 95% identical to any of the nucleotide sequences of SEQ ID NO: 1-911, or 1823-2478 in computer readable form, a skilled artisan can routinely access the sequence information for a variety of purposes. Computer software is publicly available which allows a skilled artisan to access sequence information provided in a computer readable medium. The examples which follow demonstrate how software which implements the BLAST (Altschul et al., J. Mol. Biol. 215:403-410 (1990)) and BLAZE (Brutlag et al., Comp. Chem. 17:203-207 (1993)) search

algorithms on a Sybase system is used to identify open reading frames (ORFs) within a nucleic acid sequence. Such ORFs may be protein-encoding fragments and may be useful in producing commercially important proteins such as enzymes used in fermentation reactions and in the production of commercially useful metabolites.

As used herein, "a computer-based system" refers to the hardware means, software means, and data storage means used to analyze the nucleotide sequence information of the present invention. The minimum hardware means of the computer-based systems of the present invention comprises a central processing unit (CPU), input means, output means, and data storage means. A skilled artisan can readily appreciate that any one of the currently available computer-based systems are suitable for use in the present invention. As stated above, the computer-based systems of the present invention comprise a data storage means having stored therein a nucleotide sequence of the present invention and the necessary hardware means and software means for supporting and implementing a search means. As used herein, "data storage means" refers to memory which can store nucleotide sequence information of the present invention, or a memory access means which can access manufactures having recorded thereon the nucleotide sequence information of the present invention.

As used herein, "search means" refers to one or more programs which are implemented on the computer-based system to compare a target sequence or target structural motif with the sequence information stored within the data storage means. Search means are used to identify fragments or regions of a known sequence which match a particular target sequence or target motif. A variety of known algorithms are disclosed publicly and a variety of commercially available software for conducting search means are and can be used in the computer-based systems of the present invention. Examples of such software includes, but is not limited to, Smith-Waterman, MacPattern (EMBL), BLASTN and BLASTA (NPOLYPEPTIDEIA). A skilled artisan can readily recognize that any one of the available algorithms or implementing software packages for conducting homology searches can be adapted for use in the present computer-based systems. As used herein, a "target sequence" can be any nucleic acid or amino acid sequence of six or more nucleotides or two or more amino acids. A skilled artisan can readily recognize that the longer a target sequence is, the less likely a target sequence will be present as a random occurrence in the database. The most preferred sequence length of a target sequence is from about 10 to 300 amino acids, more preferably from about 30 to 100 nucleotide residues. However, it is well recognized

that searches for commercially important fragments, such as sequence fragments involved in gene expression and protein processing, may be of shorter length.

As used herein, "a target structural motif," or "target motif," refers to any rationally selected sequence or combination of sequences in which the sequence(s) are chosen based on a three-dimensional configuration which is formed upon the folding of the target motif. There are a variety of target motifs known in the art. Protein target motifs include, but are not limited to, enzyme active sites and signal sequences. Nucleic acid target motifs include, but are not limited to, promoter sequences, hairpin structures and inducible expression elements (protein binding sequences).

4.15 TRIPLE HELIX FORMATION

In addition, the fragments of the present invention, as broadly described, can be used to control gene expression through triple helix formation or antisense DNA or RNA, both of which methods are based on the binding of a polynucleotide sequence to DNA or RNA. Polynucleotides suitable for use in these methods are preferably 20 to 40 bases in length and are designed to be complementary to a region of the gene involved in transcription (triple helix-see Lee et al., Nucl. Acids Res. 6, 3073 (1979); Cooney et al., Science 15241, 456 (1988); and Dervan et al., Science 251, 1360 (1991)) or to the mRNA itself (antisense-Olmno, J. Neurochem. 56:560 (1991); Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988)). Triple helix-formation optimally results in a shut-off of RNA transcription from DNA, while antisense RNA hybridization blocks translation of an mRNA molecule into polypeptide. Both techniques have been demonstrated to be effective in model systems. Information contained in the sequences of the present invention is necessary for the design of an antisense or triple helix oligonucleotide.

4.16 DIAGNOSTIC ASSAYS AND KITS

The present invention further provides methods to identify the presence or expression of one of the ORFs of the present invention, or homolog thereof, in a test sample, using a nucleic acid probe or antibodies of the present invention, optionally conjugated or otherwise associated with a suitable label.

In general, methods for detecting a polynucleotide of the invention can comprise contacting a sample with a compound that binds to and forms a complex with the

polynucleotide for a period sufficient to form the complex, and detecting the complex, so that if a complex is detected, a polynucleotide of the invention is detected in the sample. Such methods can also comprise contacting a sample under stringent hybridization conditions with nucleic acid primers that anneal to a polynucleotide of the invention under such conditions, and amplifying annealed polynucleotides, so that if a polynucleotide is amplified, a polynucleotide of the invention is detected in the sample.

In general, methods for detecting a polypeptide of the invention can comprise contacting a sample with a compound that binds to and forms a complex with the polypeptide for a period sufficient to form the complex, and detecting the complex, so that if a complex is detected, a polypeptide of the invention is detected in the sample.

In detail, such methods comprise incubating a test sample with one or more of the antibodies or one or more of the nucleic acid probes of the present invention and assaying for binding of the nucleic acid probes or antibodies to components within the test sample.

Conditions for incubating a nucleic acid probe or antibody with a test sample vary. Incubation conditions depend on the format employed in the assay, the detection methods employed, and the type and nature of the nucleic acid probe or antibody used in the assay. One skilled in the art will recognize that any one of the commonly available hybridization, amplification or immunological assay formats can readily be adapted to employ the nucleic acid probes or antibodies of the present invention. Examples of such assays can be found in Chard, T., An Introduction to Radioimmunoassay and Related Techniques, Elsevier Science Publishers, Amsterdam, The Netherlands (1986); Bullock, G.R. et al., Techniques in Immunocytochemistry, Academic Press, Orlando, FL Vol. 1 (1982), Vol. 2 (1983), Vol. 3 (1985); Tijssen, P., Practice and Theory of immunoassays: Laboratory Techniques in Biochemistry and Molecular Biology, Elsevier Science Publishers, Amsterdam, The Netherlands (1985). The test samples of the present invention include cells, protein or membrane extracts of cells, or biological fluids such as sputum, blood, serum, plasma, or urine. The test sample used in the above-described method will vary based on the assay format, nature of the detection method and the tissues, cells or extracts used as the sample to be assayed. Methods for preparing protein extracts or membrane extracts of cells are well known in the art and can be readily be adapted in order to obtain a sample which is compatible with the system utilized.

In another embodiment of the present invention, kits are provided which contain the necessary reagents to carry out the assays of the present invention. Specifically, the

invention provides a compartment kit to receive, in close confinement, one or more containers which comprises: (a) a first container comprising one of the probes or antibodies of the present invention; and (b) one or more other containers comprising one or more of the following: wash reagents, reagents capable of detecting presence of a bound probe or antibody.

In detail, a compartment kit includes any kit in which reagents are contained in separate containers. Such containers include small glass containers, plastic containers or strips of plastic or paper. Such containers allows one to efficiently transfer reagents from one compartment to another compartment such that the samples and reagents are not cross-contaminated, and the agents or solutions of each container can be added in a quantitative fashion from one compartment to another. Such containers will include a container which will accept the test sample, a container which contains the antibodies used in the assay, containers which contain wash reagents (such as phosphate buffered saline, Tris-buffers, etc.), and containers which contain the reagents used to detect the bound antibody or probe. Types of detection reagents include labeled nucleic acid probes, labeled secondary antibodies, or in the alternative, if the primary antibody is labeled, the enzymatic, or antibody binding reagents which are capable of reacting with the labeled antibody. One skilled in the art will readily recognize that the disclosed probes and antibodies of the present invention can be readily incorporated into one of the established kit formats which are well known in the art.

4.17 MEDICAL IMAGING

The novel polypeptides and binding partners of the invention are useful in medical imaging of sites expressing the molecules of the invention (e.g., where the polypeptide of the invention is involved in the immune response, for imaging sites of inflammation or infection). See, e.g., Kunkel et al., U.S. Pat. NO. 5,413,778. Such methods involve chemical attachment of a labeling or imaging agent, administration of the labeled polypeptide to a subject in a pharmaceutically acceptable carrier, and imaging the labeled polypeptide *in vivo* at the target site.

4.18 SCREENING ASSAYS

Using the isolated proteins and polynucleotides of the invention, the present invention further provides methods of obtaining and identifying agents which bind to a

polypeptide encoded by an ORF corresponding to any of the nucleotide sequences set forth in SEQ ID NO: 1-911, or 1823-2478, or bind to a specific domain of the polypeptide encoded by the nucleic acid. In detail, said method comprises the steps of:

(a) contacting an agent with an isolated protein encoded by an ORF of the present invention, or nucleic acid of the invention; and

(b) determining whether the agent binds to said protein or said nucleic acid.

In general, therefore, such methods for identifying compounds that bind to a polynucleotide of the invention can comprise contacting a compound with a polynucleotide of the invention for a time sufficient to form a polynucleotide/compound complex, and detecting the complex, so that if a polynucleotide/compound complex is detected, a compound that binds to a polynucleotide of the invention is identified.

Likewise, in general, therefore, such methods for identifying compounds that bind to a polypeptide of the invention can comprise contacting a compound with a polypeptide of the invention for a time sufficient to form a polypeptide/compound complex, and detecting the complex, so that if a polypeptide/compound complex is detected, a compound that binds to a polynucleotide of the invention is identified.

Methods for identifying compounds that bind to a polypeptide of the invention can also comprise contacting a compound with a polypeptide of the invention in a cell for a time sufficient to form a polypeptide/compound complex, wherein the complex drives expression of a receptor gene sequence in the cell, and detecting the complex by detecting reporter gene sequence expression, so that if a polypeptide/compound complex is detected, a compound that binds a polypeptide of the invention is identified.

Compounds identified via such methods can include compounds which modulate the activity of a polypeptide of the invention (that is, increase or decrease its activity, relative to activity observed in the absence of the compound). Alternatively, compounds identified via such methods can include compounds which modulate the expression of a polynucleotide of the invention (that is, increase or decrease expression relative to expression levels observed in the absence of the compound). Compounds, such as compounds identified via the methods of the invention, can be tested using standard assays well known to those of skill in the art for their ability to modulate activity/expression.

The agents screened in the above assay can be, but are not limited to, peptides, carbohydrates, vitamin derivatives, or other pharmaceutical agents. The agents can be

selected and screened at random or rationally selected or designed using protein modeling techniques.

For random screening, agents such as peptides, carbohydrates, pharmaceutical agents and the like are selected at random and are assayed for their ability to bind to the protein encoded by the ORF of the present invention. Alternatively, agents may be rationally selected or designed. As used herein, an agent is said to be "rationally selected or designed" when the agent is chosen based on the configuration of the particular protein. For example, one skilled in the art can readily adapt currently available procedures to generate peptides, pharmaceutical agents and the like, capable of binding to a specific peptide sequence, in order to generate rationally designed antipeptide peptides, for example see Hurby et al., Application of Synthetic Peptides: Antisense Peptides," In Synthetic Peptides, A User's Guide, W.H. Freeman, NY (1992), pp. 289-307, and Kaspczak et al., Biochemistry 28:9230-8 (1989), or pharmaceutical agents, or the like.

In addition to the foregoing, one class of agents of the present invention, as broadly described, can be used to control gene expression through binding to one of the ORFs or EMFs of the present invention. As described above, such agents can be randomly screened or rationally designed/selected. Targeting the ORF or EMF allows a skilled artisan to design sequence specific or element specific agents, modulating the expression of either a single ORF or multiple ORFs which rely on the same EMF for expression control. One class of DNA binding agents are agents which contain base residues which hybridize or form a triple helix formation by binding to DNA or RNA. Such agents can be based on the classic phosphodiester, ribonucleic acid backbone, or can be a variety of sulfhydryl or polymeric derivatives which have base attachment capacity.

Agents suitable for use in these methods preferably contain 20 to 40 bases and are designed to be complementary to a region of the gene involved in transcription (triple helix - see Lee et al., Nucl. Acids Res. 6, 3073 (1979); Cooney et al., Science 241, 456 (1988); and Dervan et al., Science 251, 1360 (1991)) or to the mRNA itself (antisense-Okano, J. Neurochem. 56, 560 (1991); Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988)). Triple helix-formation optimally results in a shut-off of RNA transcription from DNA, while antisense RNA hybridization blocks translation of an mRNA molecule into polypeptide. Both techniques have been demonstrated to be effective in model systems. Information contained in the sequences of

the present invention is necessary for the design of an antisense or triple helix oligonucleotide and other DNA binding agents.

Agents which bind to a protein encoded by one of the ORFs of the present invention can be used as a diagnostic agent. Agents which bind to a protein encoded by one of the ORFs of the present invention can be formulated using known techniques to generate a pharmaceutical composition.

4.19 USE OF NUCLEIC ACIDS AS PROBES

Another aspect of the subject invention is to provide for polypeptide-specific nucleic acid hybridization probes capable of hybridizing with naturally occurring nucleotide sequences. The hybridization probes of the subject invention may be derived from any of the nucleotide sequences SEQ ID NO: 1-911, or 1823-2478. Because the corresponding gene is only expressed in a limited number of tissues, a hybridization probe derived from any of the nucleotide sequences SEQ ID NO: 1-911, or 1823-2478 can be used as an indicator of the presence of RNA of cell type of such a tissue in a sample.

Any suitable hybridization technique can be employed, such as, for example, in situ hybridization. PCR as described in US Patents Nos. 4,683,195 and 4,965,188 provides additional uses for oligonucleotides based upon the nucleotide sequences. Such probes used in PCR may be of recombinant origin, may be chemically synthesized, or a mixture of both. The probe will comprise a discrete nucleotide sequence for the detection of identical sequences or a degenerate pool of possible sequences for identification of closely related genomic sequences.

Other means for producing specific hybridization probes for nucleic acids include the cloning of nucleic acid sequences into vectors for the production of mRNA probes. Such vectors are known in the art and are commercially available and may be used to synthesize RNA probes *in vitro* by means of the addition of the appropriate RNA polymerase as T7 or SP6 RNA polymerase and the appropriate radioactively labeled nucleotides. The nucleotide sequences may be used to construct hybridization probes for mapping their respective genomic sequences. The nucleotide sequence provided herein may be mapped to a chromosome or specific regions of a chromosome using well-known genetic and/or chromosomal mapping techniques. These techniques include in situ hybridization, linkage analysis against known chromosomal markers, hybridization screening with libraries or flow-sorted chromosomal preparations specific to known chromosomes, and the like. The

technique of fluorescent in situ hybridization of chromosome spreads has been described, among other places, in Verma et al (1988) Human Chromosomes: A Manual of Basic Techniques, Pergamon Press, New York NY.

Fluorescent *in situ* hybridization of chromosomal preparations and other physical chromosome mapping techniques may be correlated with additional genetic map data. Examples of genetic map data can be found in the 1994 Genome Issue of Science (265:1981f). Correlation between the location of a nucleic acid on a physical chromosomal map and a specific disease (or predisposition to a specific disease) may help delimit the region of DNA associated with that genetic disease. The nucleotide sequences of the subject invention may be used to detect differences in gene sequences between normal, carrier or affected individuals.

4.20 PREPARATION OF SUPPORT BOUND OLIGONUCLEOTIDES

Oligonucleotides, i.e., small nucleic acid segments, may be readily prepared by, for example, directly synthesizing the oligonucleotide by chemical means, as is commonly practiced using an automated oligonucleotide synthesizer.

Support bound oligonucleotides may be prepared by any of the methods known to those of skill in the art using any suitable support such as glass, polystyrene or Teflon. One strategy is to precisely spot oligonucleotides synthesized by standard synthesizers. Immobilization can be achieved using passive adsorption (Inouye & Hondo, (1990) J. Clin. Microbiol. 28(6), 1469-72); using UV light (Nagata *et al.*, 1985; Dahlen *et al.*, 1987; Morrissey & Collins, (1989) Mol. Cell Probes 3(2) 189-207) or by covalent binding of base modified DNA (Keller *et al.*, 1988; 1989); all references being specifically incorporated herein.

Another strategy that may be employed is the use of the strong biotin-streptavidin interaction as a linker. For example, Broude *et al.* (1994) Proc. Natl. Acad. Sci. USA 91(8), 3072-6, describe the use of biotinylated probes, although these are duplex probes, that are immobilized on streptavidin-coated magnetic beads. Streptavidin-coated beads may be purchased from Dynal, Oslo. Of course, this same linking chemistry is applicable to coating any surface with streptavidin. Biotinylated probes may be purchased from various sources, such as, e.g., Operon Technologies (Alameda, CA).

Nunc Laboratories (Naperville, IL) is also selling suitable material that could be used. Nunc Laboratories have developed a method by which DNA can be covalently bound to the microwell surface termed Covalink NH. CovaLink NH is a polystyrene surface grafted with secondary amino groups (>NH) that serve as bridgeheads for further covalent coupling.

CovaLink Modules may be purchased from Nunc Laboratories. DNA molecules may be bound to CovaLink exclusively at the 5'-end by a phosphoramidate bond, allowing immobilization of more than 1 pmol of DNA (Rasmussen *et al.*, (1991) Anal. Biochem. 198(1) 138-42).

The use of CovaLink NH strips for covalent binding of DNA molecules at the 5'-end has been described (Rasmussen et al., (1991). In this technology, a phosphoramidate bond is employed (Chu et al., (1983) Nucleic Acids Res. 11(8) 6513-29). This is beneficial as immobilization using only a single covalent bond is preferred. The phosphoramidate bond joins the DNA to the CovaLink NH secondary amino groups that are positioned at the end of spacer arms covalently grafted onto the polystyrene surface through a 2 nm long spacer arm. To link an oligonucleotide to CovaLink NH via an phosphoramidate bond, the oligonucleotide terminus must have a 5'-end phosphate group. It is, perhaps, even possible for biotin to be covalently bound to CovaLink and then streptavidin used to bind the probes.

More specifically, the linkage method includes dissolving DNA in water (7.5 ng/μl) and denaturing for 10 min. at 95°C and cooling on ice for 10 min. Ice-cold 0.1 M 1-methylimidazole, pH 7.0 (1-$MeIm_7$), is then added to a final concentration of 10 mM 1-$MeIm_7$. A ss DNA solution is then dispensed into CovaLink NH strips (75 μl/well) standing on ice.

Carbodiimide 0.2 M 1-ethyl-3-(3-dimethylaminopropyl)-carbodiimide (EDC), dissolved in 10 mM 1-$MeIm_7$, is made fresh and 25 μl added per well. The strips are incubated for 5 hours at 50°C. After incubation the strips are washed using, e.g., Nunc-Immuno Wash; first the wells are washed 3 times, then they are soaked with washing solution for 5 min., and finally they are washed 3 times (where in the washing solution is 0.4 N NaOH, 0.25% SDS heated to 50°C).

It is contemplated that a further suitable method for use with the present invention is that described in PCT Patent Application WO 90/03382 (Southern & Maskos), incorporated herein by reference. This method of preparing an oligonucleotide bound to a support involves attaching a nucleoside 3'-reagent through the phosphate group by a covalent phosphodiester link to aliphatic hydroxyl groups carried by the support. The oligonucleotide is then synthesized on the supported nucleoside and protecting groups removed from the synthetic oligonucleotide chain under standard conditions that do not cleave the oligonucleotide from the support. Suitable reagents include nucleoside phosphoramidite and nucleoside hydrogen phosphorate.

An on-chip strategy for the preparation of DNA probe for the preparation of DNA probe arrays may be employed. For example, addressable laser-activated photodeprotection may be employed in the chemical synthesis of oligonucleotides directly on a glass surface, as described

by Fodor *et al.* (1991) Science 251(4995), 767-73, incorporated herein by reference. Probes may also be immobilized on nylon supports as described by Van Ness *et al.* (1991) Nucleic Acids Res., 19(12) 3345-50; or linked to Teflon using the method of Duncan & Cavalier (1988) Anal. Biochem. 169(1), 104-8; all references being specifically incorporated herein.

To link an oligonucleotide to a nylon support, as described by Van Ness *et al.* (1991), requires activation of the nylon surface via alkylation and selective activation of the 5'-amine of oligonucleotides with cyanuric chloride.

One particular way to prepare support bound oligonucleotides is to utilize the light-generated synthesis described by Pease *et al.*, (1994) Proc. Nat'l. Acad. Sci., USA 91(11), 5022-6, incorporated herein by reference). These authors used current photolithographic techniques to generate arrays of immobilized oligonucleotide probes (DNA chips). These methods, in which light is used to direct the synthesis of oligonucleotide probes in high-density, miniaturized arrays, utilize photolabile 5'-protected *N*-acyl-deoxynucleoside phosphoramidites, surface linker chemistry and versatile combinatorial synthesis strategies. A matrix of 256 spatially defined oligonucleotide probes may be generated in this manner.

4.21 PREPARATION OF NUCLEIC ACID FRAGMENTS

The nucleic acids may be obtained from any appropriate source, such as cDNAs, genomic DNA, chromosomal DNA, microdissected chromosome bands, cosmid or YAC inserts, and RNA, including mRNA without any amplification steps. For example, Sambrook *et al.* (1989) describes three protocols for the isolation of high molecular weight DNA from mammalian cells (p. 9.14-9.23).

DNA fragments may be prepared as clones in M13, plasmid or lambda vectors and/or prepared directly from genomic DNA or cDNA by PCR or other amplification methods. Samples may be prepared or dispensed in multiwell plates. About 100-1000 ng of DNA samples may be prepared in 2-500 ml of final volume.

The nucleic acids would then be fragmented by any of the methods known to those of skill in the art including, for example, using restriction enzymes as described at 9.24-9.28 of Sambrook *et al.* (1989), shearing by ultrasound and NaOH treatment.

Low pressure shearing is also appropriate, as described by Schriefer *et al.* (1990) Nucleic Acids Res. 18(24), 7455-6, incorporated herein by reference). In this method, DNA samples are passed through a small French pressure cell at a variety of low to intermediate pressures. A lever device allows controlled application of low to intermediate pressures to the

cell. The results of these studies indicate that low-pressure shearing is a useful alternative to sonic and enzymatic DNA fragmentation methods.

One particularly suitable way for fragmenting DNA is contemplated to be that using the two base recognition endonuclease, *CviJI*, described by Fitzgerald *et al.* (1992) Nucleic Acids Res. 20(14) 3753-62. These authors described an approach for the rapid fragmentation and fractionation of DNA into particular sizes that they contemplated to be suitable for shotgun cloning and sequencing.

The restriction endonuclease *CviJI* normally cleaves the recognition sequence PuGCPy between the G and C to leave blunt ends. Atypical reaction conditions, which alter the specificity of this enzyme (*CviJI***), yield a quasi-random distribution of DNA fragments form the small molecule pUC19 (2688 base pairs). Fitzgerald *et al.* (1992) quantitatively evaluated the randomness of this fragmentation strategy, using a *CviJI*** digest of pUC19 that was size fractionated by a rapid gel filtration method and directly ligated, without end repair, to a lac Z minus M13 cloning vector. Sequence analysis of 76 clones showed that *CviJI*** restricts pyGCPy and PuGCPu, in addition to PuGCPy sites, and that new sequence data is accumulated at a rate consistent with random fragmentation.

As reported in the literature, advantages of this approach compared to sonication and agarose gel fractionation include: smaller amounts of DNA are required (0.2-0.5 μg instead of 2-5 μg); and fewer steps are involved (no preligation, end repair, chemical extraction, or agarose gel electrophoresis and elution are needed).

Irrespective of the manner in which the nucleic acid fragments are obtained or prepared, it is important to denature the DNA to give single stranded pieces available for hybridization. This is achieved by incubating the DNA solution for 2-5 minutes at 80-90°C. The solution is then cooled quickly to 2°C to prevent renaturation of the DNA fragments before they are contacted with the chip. Phosphate groups must also be removed from genomic DNA by methods known in the art.

4.22 PREPARATION OF DNA ARRAYS

Arrays may be prepared by spotting DNA samples on a support such as a nylon membrane. Spotting may be performed by using arrays of metal pins (the positions of which correspond to an array of wells in a microtiter plate) to repeated by transfer of about 20 nl of a DNA solution to a nylon membrane. By offset printing, a density of dots higher than the density of the wells is achieved. One to 25 dots may be accommodated in 1 mm^2, depending on the type of label used. By avoiding spotting in some preselected number of rows and columns,

separate subsets (subarrays) may be formed. Samples in one subarray may be the same genomic segment of DNA (or the same gene) from different individuals, or may be different, overlapped genomic clones. Each of the subarrays may represent replica spotting of the same samples. In one example, a selected gene segment may be amplified from 64 patients. For each patient, the amplified gene segment may be in one 96-well plate (all 96 wells containing the same sample). A plate for each of the 64 patients is prepared. By using a 96-pin device, all samples may be spotted on one 8 x 12 cm membrane. Subarrays may contain 64 samples, one from each patient. Where the 96 subarrays are identical, the dot span may be 1 mm^2 and there may be a 1 mm space between subarrays.

Another approach is to use membranes or plates (available from NUNC, Naperville, Illinois) which may be partitioned by physical spacers e.g. a plastic grid molded over the membrane, the grid being similar to the sort of membrane applied to the bottom of multiwell plates, or hydrophobic strips. A fixed physical spacer is not preferred for imaging by exposure to flat phosphor-storage screens or x-ray films.

The present invention is illustrated in the following examples. Upon consideration of the present disclosure, one of skill in the art will appreciate that many other embodiments and variations may be made in the scope of the present invention. Accordingly, it is intended that the broader aspects of the present invention not be limited to the disclosure of the following examples. The present invention is not to be limited in scope by the exemplified embodiments which are intended as illustrations of single aspects of the invention, and compositions and methods which are functionally equivalent are within the scope of the invention. Indeed, numerous modifications and variations in the practice of the invention are expected to occur to those skilled in the art upon consideration of the present preferred embodiments. Consequently, the only limitations which should be placed upon the scope of the invention are those which appear in the appended claims.

All references cited within the body of the instant specification are hereby incorporated by reference in their entirety.

5.0 EXAMPLES

5.1 EXAMPLE 1

Novel Nucleic Acid Sequences Obtained From Various Libraries

A plurality of novel nucleic acids were obtained from cDNA libraries prepared from various human tissues and in some cases isolated from a genomic library derived from human

chromosome using standard PCR, SBH sequence signature analysis and Sanger sequencing techniques. The inserts of the library were amplified with PCR using primers specific for the vector sequences which flank the inserts. Clones from cDNA libraries were spotted on nylon membrane filters and screened with oligonucleotide probes (e.g., 7-mers) to obtain signature sequences. The clones were clustered into groups of similar or identical sequences. Representative clones were selected for sequencing.

In some cases, the 5' sequence of the amplified inserts was then deduced using a typical Sanger sequencing protocol. PCR products were purified and subjected to fluorescent dye terminator cycle sequencing. Single pass gel sequencing was done using a 377 Applied Biosystems (ABI) sequencer to obtain the novel nucleic acid sequences.

5.2 EXAMPLE 2

Assemblage of Novel Nucleic Acids

The contigs or nucleic acids of the present invention, designated as SEQ ID NO: 1823-2478 were assembled using an EST sequence as a seed. Then a recursive algorithm was used to extend the seed EST into an extended assemblage, by pulling additional sequences from different databases (i.e., Hyseq's database containing EST sequences, dbEST, gb pri, and UniGene, and exons from public domain genomic sequences predicated by GenScan) that belong to this assemblage. The algorithm terminated when there were no additional sequences from the above databases that would extend the assemblage. Further, inclusion of component sequences into the assemblage was based on a BLASTN hit to the extending assemblage with BLAST score greater than 300 and percent identity greater than 95%.

5.3 EXAMPLE 3

Novel Nucleic Acids

The novel nucleic acids of the present invention were assembled from sequences that were obtained from a cDNA library by methods described in Example 1 above, and in some cases sequences obtained from one or more public databases. The nucleic acids were assembled using an EST sequence as a seed. Then a recursive algorithm was used to extend the seed EST into an extended assemblage, by pulling additional sequences from different databases (Hyseq's database containing EST sequences, dbEST, gb pri, and UniGene) that belong to this assemblage. The algorithm terminated when there was no additional sequences from the above databases that would extend the assemblage. Inclusion of component sequences

into the assemblage was based on a BLASTN hit to the extending assemblage with BLAST score greater than 300 and percent identity greater than 95%.

Using PHRAP (Univ. of Washington) or CAP4 (Paracel), a full-length gene cDNA sequence and its corresponding protein sequence were generated from the assemblage. Any frame shifts and incorrect stop codons were corrected by hand editing. During editing, the sequences were checked using FASTY and/or BLAST against Genebank (i.e., dbEST, gb pri, UniGene, and Genpept) and the Geneseq (Derwent). Other computer programs which may have been used in the editing process were phredPhrap and Consed (University of Washington) and ed-ready, ed-ext and cg-zip-2 (Hyseq, Inc.). The full-length nucleotide and amino acid sequences, including splice variants resulting from these procedures are shown in the Sequence Listing as SEQ ID NO: 1-1822.

Table 1 shows the various tissue sources of SEQ ID NO: 1-911.

The homologs for polypeptides SEQ ID NO: 912-1822, that correspond to nucleotide sequences SEQ ID NO: 1-911 were obtained by a BLASTP version 2.0al 19MP-WashU searches against Genpept and Geneseq (Derwent) using BLAST algorithm. The results showing homologues for SEQ ID NO: 912-1822 from Genpept 127-129 are shown in Table 2A. The results showing homologues for SEQ ID NO: 912-1822 from Genpept 131 are shown in Table 2B.

Using eMatrix software package (Stanford University, Stanford, CA) (Wu et al., J. Comp. Biol., Vol. 6, 219-235 (1999), http://motif.stanford.edu/ematrix-search/ herein incorporated by reference), all the polypeptide sequences were examined to determine whether they had identifiable signature regions. Scoring matrices of the eMatrix software package are derived from the BLOCKS, PRINTS, PFAM, PRODOM, and DOMO databases. Table 3 shows the accession number of the homologous eMatrix signature found in the indicated polypeptide sequence, its description, and the results obtained which include accession number subtype; raw score; p-value; and the position of signature in amino acid sequence. The results showing homologous signatures for SEQ ID NO: 912-1822 from eMatrix version 1.0 are shown in Table 3A. The results showing homologous signatures for SEQ ID NO: 912-1822 from eMatrix version 2.0 are shown in Table 3B.

Using the Pfam software program (Sonnhammer et al., Nucleic Acids Res., Vol. 26(1) pp. 320-322 (1998) herein incorporated by reference) all the polypeptide sequences were examined for domains with homology to certain peptide domains. Table 4A shows the name of the Pfam model found, the description, the e-value and the Pfam score for the

identified model within the sequence using Pfam versions 7.0 and 7.2. Table 4B shows the name of the Pfam model found, the description, the e-value and the Pfam score for the identified model within the sequence using Pfam version 7.5. Further description of the Pfam models can be found at http://pfam.wustl.edu/.

The GeneAtlas™ software package (Molecular Simulations Inc. (MSI), San Diego, CA) was used to predict the three-dimensional structure models for the polypeptides encoded by SEQ ID NO: 1-911 (i.e. SEQ ID NO: 912-1822). Models were generated by (1) PSI-BLAST which is a multiple alignment sequence profile-based searching developed by Altschul et al, (Nucl. Acids. Res. 25, 3389-3408 (1997)), (2) High Throughput Modeling (HTM) (Molecular Simulations Inc. (MSI) San Diego, CA,) which is an automated sequence and structure searching procedure (http://www.msi.com/), and (3) SeqFold™ which is a fold recognition method described by Fischer and Eisenberg (J. Mol. Biol. 209, 779-791 (1998)). This analysis was carried out, in part, by comparing the polypeptides of the invention with the known NMR (nuclear magnetic resonance) and x-ray crystal three-dimensional structures as templates. Table 5 shows: "PDB ID", the Protein DataBase (PDB) identifier given to template structure; "Chain ID", identifier of the subcomponent of the PDB template structure; "Compound Information", information of the PDB template structure and/or its subcomponents; "PDB Function Annotation" gives function of the PDB template as annotated by the PDB files (http:/www.rcsb.org/PDB/); start and end amino acid position of the protein sequence aligned; PSI-BLAST score, the verify score, the SeqFold score, and the Potential(s) of Mean Force (PMF). The verify score is produced by GeneAtlas™ software (MSI), is based on Dr. Eisenberg's Profile-3D threading program developed in Dr. David Eisenberg's laboratory (US patent no. 5,436,850 and Luthy, Bowie, and Eisenberg, Nature, 356:83-85 (1992)) and a publication by R. Sanchez and A. Sali, Proc. Natl. Acad. Sci. USA, 95:13597-12502. The verify score produced by GeneAtlas normalizes the verify score for proteins with different lengths so that a unified cutoff can be used to select good models as follows: Verify score (normalized) = (raw score – 1/2 high score)/(1/2 high score)

The PFM score, produced by GeneAtlas™ software (MSI), is a composite scoring function that depends in part on the compactness of the model, sequence identity in the alignment used to build the model, pairwise and surface mean force potentials (MFP). As given in table 5, a verify score between 0 to 1.0, with 1 being the best, represents a good model. Similarly, a PMF score between 0 to 1.0, with 1 being the best, represents a good model. A SeqFold™ score of more than 50 is considered significant. A good model may

also be determined by one of skill in the art based all the information in Table 5 taken in totality.

Table 6 shows the position of the signal peptide in each of the polypeptides and the maximum score and mean score associated with that signal peptide using Neural Network SignalP V1.1 program (from Center for Biological Sequence Analysis, The Technical University of Denmark). The process for identifying prokaryotic and eukaryotic signal peptides and their cleavage sites are also disclosed by Henrik Nielson, Jacob Engelbrecht, Soren Brunak, and Gunnar von Heijne in the publication " Identification of prokaryotic and eukaryotic signal peptides and prediction of their cleavage sites" Protein Engineering, Vol. 10, no. 1, pp. 1-6 (1997), incorporated herein by reference. A maximum S score and a mean S score, as described in the Nielson et al reference, was obtained for the polypeptide sequences.

Table 7 correlates nucleotide sequences of the invention to a specific chromosomal location when assignable.

Table 8 shows the number of transmembrane regions, their location(s), and TMPred score obtained, for each of the SEQ ID NO: 912-1822 that had a TMPred score of 500 or greater, using the TMpred program (http://www.ch.embnet.org/software/TMPRED_form.html).

Table 9 is a correlation table of the novel polynucleotide sequences SEQ ID NO: 1-911, their corresponding polypeptide sequences SEQ ID NO: 912-1822, their corresponding priority contig nucleotide sequences SEQ ID NO: 1823-2478, their corresponding priority contig polypeptide sequences SEQ ID NO: 2479-3134, and the US serial number of the priority application (all of which are herein incorporated in their entirety), in which the contig sequence was filed.

Table 10 is a correlation table of the novel polynucleotide sequences SEQ ID NO: 1-911, the novel polypeptide sequences SEQ ID NO: 912-1822, and the US application serial number and corresponding SEQ ID NO in which the sequence was previously filed.

Table 1

115

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
*Mixture of 16 tissues - mRNA	Various Vendors	CGd011	58 74 147 267 277 432 489 496 618
*Mixture of 16 tissues - mRNA	Various Vendors	CGd012	3-4 6 9 19-20 41 56-58 62 71-72 74 78 81 91-92 114 118-119 128 133 141 147-149 153 155 165-167 176-177 185 187 195 215 218 220 228-229 237 245 249 257 259 267 271 277-280 302 310 313 326 353 355 366 368-369 380 385 391 394 398 405-406 409-410 417 432 439-440 442 449 452 460 462 464 471-472 475 480 489 496 498 505 524-528 535 546 555 581 585 594 610 618 636 804 811 816 845 871
*Mixture of 16 tissues - mRNA	Various Vendors	CGd013	55 71 78 92 165 228 271 276 279-280 310 353 355 422 424 496 526 531 606 618 908
*Mixture of 16 tissues - mRNA	Various Vendors	CGd015	10 97 100 194-195 246 258-260 266 270 282 311 355-357 398 408 423 428-430 439 495 526 544 805
*Mixture of 16 tissues - mRNA	Various Vendors	CGd016	10 14 20 51 71 75 83 116 139 149 168 174-175 194-195 209 230 233 238-239 248 257 266-267 279-280 289 311-312 355 403 420-421 493 503 513 515 532 543 689 707 909
*Mixture of 16 tissues - mRNA	Various Vendors	CGd010	176 185 352 380 386 403 422 425-426 517 537 606
adrenal gland	Clontech	ADR002	7 21 36 40 43 64 69 88 101 120 130 147 157 162-163 169 184 187 195 203 218 225 230 236 275 283 289 298-299 317 355 381-382 392 425 427 430 446 449 460 471 477 503 510 524 531 536 540 544 578 622 627 648 668 729 788-789
adult bladder	Invitrogen	BLD001	19 33 54 128 195 220 312 355 395 421 423 446 464 503 543 618 829
adult brain	BioChain	ABR012	184 246 355 364
adult brain	BioChain	ABR013	102 226 355 423 432
adult brain	GIBCO	AB3001	3 87 97 100 236 269 304-306 355 377 427 497 536 540
adult brain	GIBCO	ABD003	16 20-21 27 40 59 62 87 94 100 105 117 120 128-129 134 140 157 184 191-192 195 201 234 238-240 245-246 250 256 260 267-268 270 272 295 304-306 316 335 351-353 355 362 369 377 384 399 412 415 419 423 430 440 457-460 464 470 477 496 498 503 519 536 539-540 543 555 589 637
adult brain	Invitrogen	ABR014	120 199 226 246 248 312 319 355 401 445 477 503 611
adult brain	Invitrogen	ABR015	20 27 42 49 100 135 157 186 195 199 226 246 256 430 432 446 472 484 543 868
adult brain	Invitrogen	ABR016	16 100 120 195 226 267 355 459 496 526
adult brain	Clontech	ABR001	21 27 40 59 87 101 112 128 226 268

Table 1

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
			272 355 364 382 387 428-429 464 503 517 543 619-620 644 838 847 852
adult brain	Clontech	ABR006	17 23 30 33 41 43 59 64 88 94 98 120-121 124 131 133 154 179 183-184 194 199 207 214 220 226 231 238-240 250 256 257 266 278 281 304 312 351 353 355 365 376 382 392 401 412 415 419 427 430 433 445 460 464 479 516-517 519 535-537 540 542-543 546 548 555 582 728 747-748 754 816
adult brain	Clontech	ABR008	3 17 23 26 29 31 36 40-41 44 49 51 57 59 62 78 83 87-88 90 100-102 109 115 121 124 127-128 130 131 133-136 145-146 149 154 158 161-163 167 169-171 182 184 186 195-196 202 207 211 214 224 227 231 244-246 248 250-251 256 261-262 267 276 281 285-286 296-297 312 319 337 351 353 355 364-365 368 372 376 380 383 385 390-391 394 401 403 412 423 427 431 433 435-436 437 444-445 447-448 452 457-458 460-461 465-466 479-481 489 503 506 508 513 517 526 535 545 577-578 585 592 598 611 621 624-626 648 674-675 722 816 833 837 839 847-848 852 857 865-866 884
adult brain	Clontech	ABR011	26 285-286 431
adult brain	Invitrogen	ABT004	19-21 30 35 44 57 59 64 87 128 131 140 144 157 161 187 198 202 226 230 250 268 272 293 295 351 355 365 372 387 395 415 424 427 428 442-443 446 452 455 457-458 478 498 513 516 524 540 543 816 831
adult cervix	BioChain	CVX001	10 22-23 36 41 43 62-63 77 100-101 105-106 109 120 130 134 137 141 154 160 162-163 178-180 183-184 187 192 195 198 215 217 226 240 246 249 260 262 267 272 285 297 304 310-311 316 334-336 353 355 373-374 377 379-380 385 395 400 408-409 412 417 425 431 452 464 468 476-477 482 496-497 503 508 512 516 540 546 578 592 626 645 660-662 676 680 888
adult colon	Invitrogen	CLN001	19 21 57 109 128 130 131 148 168 230 240 301 364 412 424 440 452 464 469 543 664
adult heart	GIBCO	AHR001	3 19-20 22 26 41 45 59 62 67 94 97 99-101 106 109 120 124 126 128 134 138 157 171 183 186-190 195 197-198 202 205 211 215 226-227 238-240 248 249 261-262 267-268 281 285 311 316 335 353 373-374 379-380 399 412 419 423 425 430 433 440 464 477 480 496 498 503 506 543 546 553 566 570 580
adult kidney	GIBCO	AKD001	3 17 19-20 25 32 35-37 41 49 57 59 62

Table 1

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
			64 87 94 98-102 105 109 120 128 134-137 145 153-154 157-158 160 176 179-180 182 184 186 192 195 198 215 226-227 234 238-240 246 248 256 257 262 267 272 278 283 285 297 304 310-311 316 326 353 355 362 364 372 375 377 379 381-382 391 395 412 415 421-422 423-424 430-432 434 437 440 444 452 459 464 470 477 496 503 506 510 519 527-528 540 546 551 566 578 585 606 837
adult kidney	Invitrogen	AKT002	1 17 20 26 59 62 73 87 94 100-101 120 133 135 154 160 177 187 195 208 226 228 238-239 248 249 257 260 262-264 267-268 276 293 299 353 355 359 362 380 412 419 421 425 427 431 434 436 439 452 462 464 498 503 508 515 519 532 540 543 546 586 590
adult liver	Invitrogen	ALV002	1 3-4 14-16 19-20 32-33 40 48 54 63 77 87 94 97 101 128-129 135-136 138-139 149 157 180 182 187 193 195-196 203 226-227 246 248 257 262 277-278 305-306 316 347 355-357 362 364 383 391 412 423 427 430 446 477 496 503 510 525 540 553 629 636 852
adult liver	Clontech	ALV003	14 24 34 40 94 160 195 227 257 278 355-357 362 369 424 436 496 527-528 750 901
adult lung	GIBCO	ALG001	20 36 40 100 105 120 128 130 154 157 195 198 263-264 267 273 336 373-374 420 437 446 464 477 503 543
adult ovary	Invitrogen	AOV001	1 13 15 17 19-22 36 41 49 51 57 59 62 68 70-71 77 87-88 97 100-101 105-106 109 112 116 120 125 128 130 134 144 157-160 169 176-177 179 181-182 184 187 191-193 195 198 203 211 213 215 226 230 236-237 240 246 248 249 261-264 267-268 271-272 279-280 288-289 295 298-299 304 310 320 335 355 362 364-365 376-377 380 383-386 389 391 394-395 399 408 412 415 417 422 424 434 436 440 446 452 456 459-460 477 479 496-497 503 506 510 518-519 535-536 540 543-544 546 555 591 612-614 794 823 827 829-830 833-834 860
adult placenta	Clontech	APL001	16 195 256 285 399 421 424 446 464 477 792
adult spleen	Clontech	SPLc01	17 22 36 46 88 91 93 97 103 112 135-136 142 147 162-163 187 195 256 263-264 268 281 303-306 311-312 353 376 427 433 436 437 452 477 480 506 515 518 535 537 548
adult spleen	GIBCO	ASP001	3 10 46 77 81 94 97 100 105 120 129 134-136 160 166 186-187 195 226 240

Table 1

118

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
			246 248 256 257 267 303-304 311 316 355 377 382 389 391 423 427 430 432 436 452 477 536 540 543 582 586
adult testis	GIBCO	ATS001	20-21 100-101 105-106 109 128 154 157 160 169 191-193 195 198 213 248 256 267 269 295 316 336 355 380 388 415 452 460 477 496 508 518 540-541
bone marrow	GF	BMD002	10 17 20 25 36 41 43 45-46 58-59 70-71 75 81 86 88 100 106 109 115 120 124 130 134 136 138 147 154-155 157 162-163 166-167 182-184 187-190 193 195-196 198 202 216-217 220 226 231 233 240 248 256 258-259 267-268 272 279-280 338-339 359 364 373-374 376-377 380 382 389 391 398 403 412 415 417 423 427 432 436 437 444 446 452 460 464 477 480 490 493 497 503 505 513 517-518 526-528 532 537 540 543 546 548 551 581-582 597 613 626 694 697 704 723 729 741-742 744 751 754-755 768 775 815 822 855 859 874 885 891
bone marrow	Clontech	BMD001	10 16 20 22 25 36 41 49 59 62 71 81 97 99-100 120 128 130 134 136 143 157 179 184 187-190 195 198 207 211 215-217 236 247 256 258-260 263-265 267 269 279-280 282 285 298 304 312 353 364 373-375 377-378 380 389 398 419 421-422 423 425 430 432 434 452 477 480 497 503 506 518-519 536-537 544 546 551 556 566 569 571-572 602 604 615 728 815 818
bone marrow	Clontech	BMD004	259 398
bone marrow	Clontech	BMD007	36 259 398
bone marrow	BMD008	259	398
bone marrow	null	STM001	91 136 166 195 256 362 377 412 423-425 477 503 537 540
CGSP009		255	
cultured preadipocytes	Stratagene	ADP001	9 17 76 100 120 134 136 179 195 226 246 248 263-264 267 275 281 295 323 345-346 377 391 423-425 427 430-431 464 477 503 506 531 543 546 548 592 701 876
endothelial cells	Stratagene	EDT001	3-4 10 20 22-23 35-36 41 47 51 57 59 62 64 87 97 99-102 105-106 108-110 120 128 134-135 144 153 157 167 177 179 182-183 186 191 195 204 214-215 226 240 246 248 251 256 262 267-268 270 272-273 275 282 285 295 304 353 355 362 364-365 373-374 376-377 379 382 385-386 388 391 394 403 412 419 423-425 427 430-432 440 444-445 477 497 503 506 508 546 548 566 608
esophagus	BioChain	ESO002	532 607
fetal brain	Invitrogen	FBT002	3 20 42 57 64 100 130 134-135 154

Table 1

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
			157 162-163 169 214 226 250 262 265 267 272 283 294 336 351 355 365 407 412 423 431 440 444-445 460 470 477 498-499 526 544 578 610
fetal brain	GIBCO	HFB001	4 20 22 26-31 36 42 49 59 64 77 85 87 97 100-102 105 108-109 120 128 134 157 179 184 186 191-192 195 198-199 211 226 238-239 246 248 256 261-262 267-268 285 295 300 310 335 353 355 365 376-377 379-380 390 415 419 421 423-424 430 446 448 460 477-478 489 496 503 506 513 516 536 542 546 595 793 817
fetal brain	Clontech	FBRs03	49
fetal brain	Clontech	FBR001	30 87 100 182 199 268 415 435 516 578
fetal brain	Clontech	FBR004	36 214 224 229 376 394 445 460 513 516 578 611 787 816 861 897
fetal brain	Clontech	FBR006	3 12 15 20-21 23 25 33-34 36 44 49 58-59 62 78 83 88 91 99-100 103 106 124 128 130 131 134-136 149 154 161 169 182 184 186-187 193 227 231 236 242 245 256 261 281 285 292 301 311-312 320 353 355 360-361 364-365 376 383 385 401-403 412 422 423-424 427 433 435 441 444 446 452 457-458 460 465 471 478-480 486 496 502-503 506 513 515 517 526 535 537 546 548 566 756-757 759-760 784-785 858-859 886
fetal heart	Invitrogen	FHR001	3 7 12 16 19-20 26 31 84 94 101-102 106 109 124 135-136 138 142 158 183-184 193 195 227 229 236 241 249 265 267 270 273 277 285 307 310 353 355 376 380 382 385 387 394 396 408 412 419 425-426 430-432 444-445 452 464 477 498 503 506-509 513 526 543 546 548 592 598 648 761-763 765-766 776-778 859-860 893
fetal kidney	Invitrogen	FKD007	26 111 162-163
fetal kidney	Clontech	FKD001	46 186-187 195 267 335 421 452
fetal kidney	Clontech	FKD002	12 44 49 71 93 97 100 102 106 128 130 136 154 162-163 179 183 186 195 227 267 276 279-280 285 310 316 376 384 387 389 464 477 480 496 498-499 510 535 554 582 729 768 894 897
fetal liver	Clontech	FLV002	20 34 40 68 78 85 93 125 182 194-195 207 257 259 266 278 297 356-357 383 398 457-458 477 496 548 767
fetal liver	Clontech	FLV004	5 12 14 20 24 32-33 40 49 94 100 115 128 130 135 157 159-160 169 176 179-180 195-196 203 224 226-227 229 246 249 253 257 259 267 278 295 305-306 355-357 385 398 424 427 437 459 464 477 496 498 537 546 581 603 641 743 768

Table 1

120

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
fetal liver	Invitrogen	FLV001	20 32-33 36 85 94 128 144 149 154 157 171 180 182 195 248 278 292 312 316 355 362 423 430-431 436 441 472 477 498 540 543 555
fetal liver-spleen	Columbia University	FLS001	2-3 10 12 14-17 19-24 26-27 32-36 39 41 43 49 51 57 59 62 80 90-94 96-97 99-100 105 107 109 120 128-130 134 136 149 153 157-158 162-163 167 176-177 179-187 191 194-195 198 211 215 226-228 230 234 237 240 243 245-246 248 254-259 262 266-268 270 277-278 282-283 285 295 297 310-311 316 320-326 330-331 335-336 338 353 355-357 362 370-374 376 380 382 384 391 394 398 412-413 415 419-421 423 430 439-440 446 452 456 459-460 464 472 477 479-480 489 496-499 503 506 510 515 525-526 534-535 538 540 543-544 546 548 555 557-560 562-566 568 573-574 576 578 591 593 600-601 732-735 809-812 814 820 827
fetal liver-spleen	Columbia University	FLS002	2-3 6 10 14-15 17-20 22-24 26 33 37 41 48-49 56-57 62 69 77 81 85-86 90 92 94 99-100 104 107-109 114 120 129 134-135 144 149 157 168-169 174-175 179-181 185-187 194 211 215 224 227 230-231 233 237 240 245-246 257-259 262 266-268 270 272 275 278 298 300 304-306 311 313 316-317 320 326-336 352-354 362 364-365 376-377 382-384 398 411-412 415 419 421 425 430 433 436 439 441 446 452 456 459-460 464 477 479 491-492 496 499 503 505-506 508 510 515 519 526 535 539 544 546 566 575 578 591 593 601 654-657 659 685 687-691 705 707 709 774 779-780 809 812 820 833 837 854-856 872 896
fetal liver-spleen	Columbia University	FLS003	14 17 20 26 34 63 86 99 107 167 179 187 195 211 220 227 231 248 257 275 278 320-321 328 335 355-357 365 384 394 411-412 416 423 425-427 430-431 440 464 486 497 506 510 525 546 558 566 648 732 735 738-740 746 779-781 787 809 812 814 837
fetal lung	Clontech	FLG001	22 49 160 176 195 237 259 267 353 398 421 430 436 456 815
fetal lung	Clontech	FLG004	12 41 506
fetal lung	Invitrogen	FLG003	15 64 115 128 135 142 151 154 186-187 193 195 220 236 253 276 355 421 446 464 506 519 527-528 537 578 626
fetal muscle	Invitrogen	FMS001	20 94 100 128 138 171 184 195 226 246 259 267 311 398 412 443 478 498 531 585 610
fetal muscle	Invitrogen	FMS002	12 21 38 57 71 86 100-101 104 109 116 129-130 138 179 195-196 204 253

Table 1

121

Tissue Origin	Library/RNA Source	HYSEQ LIbrary Name	SEQ ID NOS:
			285 312-313 336 376 384-385 391 403 423 427 430 446 452 473 498 507 517 535 546 598 643 892
fetal skin	Invitrogen	FSK001	2 6 12 30-31 56 59 62-63 74 88 97 100 109 115-118 128 134-135 138 141 151-152 154 160 168 178 181-182 185 187 193 195 229 236 248 249 252 267 272-273 276 282 301 313-316 320 362 364-365 385 391 404-407 410 415 421 423 427 430 446 452 460 471 473-474 477 486-489 499 503 512 526-528 537 540 543 548 551-552 594 598 635 681-682 813 829 870-871 888
fetal skin	Invitrogen	FSK002	9 12 17 20 33 46 58 74 76-78 83 103 118 124 128-129 135 142 162-163 167-169 177 193 195 203 229 231 244 249 254 256 276 311 313-314 342 346 363 372 376 382 391 393-394 410 421 423 427 433 464 473 477-478 480-481 486-487 497-499 511-513 515 518 535 537-538 543 589 592 626 701 731 768-769 771 781 895 898-899
fetal spleen	BioChain	FSP001	46 256
induced neuron-cells	Stratagene	NTD001	15 20 49 87 109 119-120 157 179 195 208 226 234 238-239 267 282 340-344 364 494-495 504 506 516 546 597 698-699 887
infant brain	Columbia University	IB2003	21-22 26 31 48 77 82 98-99 103 128 131 134-135 154 179 198 211 214 230 234 295 312 339 348-349 351 353 355 362 365 391 415 423 431 445 452 460 470 478 497 513 515-516 535 537 540 543 566 578 639-640 726 816 833 849
infant brain	Columbia University	IBS001	21 59 77 98 131 154 224 244 371 513 540 543 578 639 812
infant brain	Columbia University	IBM002	19 26 77 248 516
infant brain	Columbia University	IB2002	19 21-22 26-27 31 36 57 62 77 93 97-98 120 128-129 131 134 140 149 154 169 179 182 187 208 214 226 230 234 237 256 267-268 273 281 284 295 336 351 353 355 365 371 387 415 421 429 431 435 445-446 452 460-461 478-479 496 503 508 513 515 536-537 543 546 555 578 605 613 639-640 816 826 849 853
leukocyte	GIBCO	LUC001	3 20 23 35-36 39 59 62 64 70-71 87-88 94 100-101 105-106 120 128-130 134-137 139 148 154-155 160 165 176 179 184 186-190 192-193 195-196 198 211 216-217 225-226 236 240 246 251 256 257 260 262-264 267-268 270 279-280 285 298 304 311 353 355 362 375 377 380 412 415 417 423-426 432 437 440 444 452 456 460 477 479 497 503 505-506 508 519 540 543 546 565 582-

Table 1

122

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
			585 587-588 596 646 821
leukocyte	Clontech	LUC003	41 47 59 71 100 144 186-187 195 240 263-264 267 279-280 298 385 432 437 446 497 503
lung tumor	Invitrogen	LGT002	20 35-37 41 43-44 47-49 54-55 59 62 64 71 77 93-94 100 102 106 120 134 136 139 154 157 176 186 194-195 198 211-212 215 218 222 226 234 237-239 246 249 256 257 260 262-264 267 276 279-280 289 305-306 311 336 355 362 364 380 382 385 388 394 396 417 419 421 425 427 432-433 438 444 446 449 477 483-485 496-497 503 506 508 527-528 540 543 589 606 611 616-617 651 679 799 828 835 867-869
lung, fibroblast	Stratagene	LFB001	3-4 16 22 35-36 41 94 100 105 116 120 128 134-135 177 191 195 235 256 267 353 355 364 377 379 425 459 464 477 497 503 703 813 829
lymph node	Clontech	ALN001	10 53 57 81 136 182 195 198 209 246 263 267 353 355 389 432 503 506
lymphocyte	null	DGD001	267 311 373-374 412 430-432 460 464 480 503 536
lymphocytes	ATCC	LPC001	35-36 41 57 77 99-100 105 115 120 128 139 148 155 171 176 179 182 187-190 192 196 226 232-233 236-237 260 263-264 267-268 270 379 417 427 450 452 497-498 514 518 540 547-548 566 583 587 619 693 851
macrophage	Invitrogen	HMP001	87 128 177 187 196-197 257 277 355 362 385 412 415 420 423 446 464 497 537 543 551 782-783 795
mammary gland	Invitrogen	MMG001	8 16 20 36 44 56-57 59-60 64 74 77 90 94 96-97 100 109 120 128 130 134-136 154 157 160 162-163 168 179 182 187 193 195 198 211 219-220 226 240 248 249 251 257 262 267-268 272-273 276 281 287 300-301 316 355 362 364 372 383 388 393-394 417 421 423 427 430-432 440 446 452 460 477-478 497 503 506 516 527-528 537 540 543 555 585 597 680 842-843
melanoma from-cell-line-ATCC-#CRL Clontech	MEL004	3 20 26 41 59 100 120 130 160 195 223 237 246 267 269 275 305-306 376 409 412 419 423 437 446 459 464 477	

Table 1

123

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
		486 647 669 862	
neuronal cells	Stratagene	NTU001	21 49 51 57 59 83 96 120 134 179 195 230-231 256 262 267 289 351 355 383 412 423 427 497 503 527-528 727 875
pituitary gland	Clontech	PIT004	16 19 68 87 100 112 128 192 195 246 262 268 275 355 372 394 416 427 430-431 477 503 578
placenta	Invitrogen	APL002	16 36 57 77 141 187 230 248 262 295 355 423 430-431 446 496 527-528 555
placenta	Clontech	PLA003	20 33 70 88 90 109 115 120 124 129 141 181 193 237 245 249 285 297 316 355 382 391 403 411 421 446 464 477 486 497 513 548 772-773
prostate	Clontech	PRT001	10 20 36 49 85 94 100 135 142 188-191 195 198 237 267 282 285 316 320 353 379 394 421 423 425 437 460 506 589 631-632
rectum	Invitrogen	REC001	35 77 120 128 136 153 159 168 182 256 268 272 301 423 430 494 499 503 505 537 543-544 552 578 664
retinoic acid-induced-neuronal-cells	Stratagene	NTR001	120 130 179 183 193 256 355 460 478 503 890
saliva gland	Clontech	SAL003	475
salivary gland	Clontech	SAL001	19 38 66 134-136 139 191 195 206 240 246 256 311 355 362 376 382-383 395 421 432 456 460 464 475 477 494 497-498 503 527-528 666 790 826
skeletal muscle	Clontech	SKM001	17 41 100 195 197-198 211 215 236 238-239 298 302 369 415 443 452 475 496 503
skin fibroblast	ATCC	SFB001	49 464
skin fibroblast	ATCC	SFB002	49 246 267 477
skin fibroblast	ATCC	SFB003	49
small intestine	Clontech	SIN001	3 6 10 46 57 59 62 77 90 94 97 100 102 106 109 112 115 120 123 128 142 162-163 168 177 179 183 186 188-190 195 224 226 240 246 248 262 267-268 275 289 302 311 316 324 353 355 364 372-376 380 382-384 394 408 412 423 425 430 432 439 442 444 452 459 464 477-478 499 503 532 536 540 547-548 626-627 633 648 729 736-737 745-746 823 828 844
spinal cord	Clontech	SPC001	3 17 27 34 41 57 64 87 100-101 128 157 183 187 192 195 199 204 226 229 234 240 246 248 260-261 263-264 267 304 308-309 311 355 369 382 384 388 412 415 419 428-429 434 446 457-460 478 496 503 519 648 652
stomach	Clontech	STO001	36 57 104 115 120 134-135 168 195 267 311 330-331 364 414 423 425 452 456 460 540 886
thalamus	Clontech	THA002	19 87 113 121 160 182 195 202 248

Table 1

Tissue Origin	Library/RNA Source	HYSEQ Library Name	SEQ ID NOS:
			249 262 272 283 289 355 365 424 427 451 457-458 460 477 480 503 535-536 543 634 841
thymus	Clontech	THMc02	3 12 20 36 58-60 70-72 90 93 97 101-102 109 114-115 130 135 147-148 160 162-163 167 169 171 179 183-184 187 195-196 217 237 249 259 276 279-280 303 307 312 320 355 376 383-384 398 402 419 422 432-433 436 437 444 464 471 479-480 506 508 513 515 535 537 550 589 641-642 671-672 787 830 858-859 864
thymus	Clontech	THM001	20 53 59 71 100-101 105-106 110 114 128 130 134 154 157 179 188-191 195 215 224 230 240 248 259 267 279 335 380 382 385 391 398 408 412 427 432 437 452 459 476 497 543 546 611 833 900
thyroid gland	Clontech	THR001	3 16 19-20 23 33 35 41 43-44 48-49 57 59 87 94 100-101 120 133-135 147 149 157 162-163 179 187 191 193 195 198 206 209 215 217 229 246-247 256 261-262 267 272 276 283 287 297 304-306 309 312 316 335 353 355 362 364 371-374 380 385 394 399 412 419 421 431 442 444 452-453 460 462 475 477 479 496-497 503 506 519-520 536 543 546 548 596 649 653 704 731 812 845 851
trachea	Clontech	TRC001	100-101 120 130 184 195 267 300 355 380 396-397 399 415 421 423 464 475 503 527-528 546 709 725
umbilical cord	BioChain	FUC001	7 26 36 40 43 46 50-51 57 68 71 77-78 96 100 102 109 115 120 128 142 158-159 172-173 179 184 186 191 195 198 215 226 228 230 236-237 240 246 250 267 273 275 279-280 283 287 300 304 335 351 355 364-365 381 388 394 399 408 425 430 440 452 459 464 475 477 503 536-537 540 543 546 576 589 630 635 669 682 684 904
uterus	Clontech	UTR001	16 22 64 77 87 100 128 134 195 226 249 335 366 412 425 427 452 454 464 546 551
young liver	GIBCO	ALV001	5 14 20 26 32-33 57 71 87 94 97 100 102 105 120 128 134 154 157 179 192 194-195 227 257 266 274 278 326 355-357 437 446 498 503 516 532 846

*The 16 tissue/mRNAs and their vendor sources are as follows: 1) Normal adult brain mRNA (Invitrogen), 2) Normal adult kidney mRNA (Invitrogen), 3) Normal fetal brain mRNA (Invitrogen), 4) Normal adult liver mRNA (Invitrogen), 5) Normal fetal kidney mRNA (Invitrogen), 6) Normal fetal liver mRNA (Invitrogen), 7) normal fetal skin mRNA (Invitrogen), 8) human adrenal gland mRNA (Clontech), 9) Human bone marrow mRNA (Clontech), 10) Human leukemia lymphoblastic mRNA (Clontech), 11) Human thymus mRNA (Clontech), 12) human lymph node mRNA (Clontech), 13) human so\spinal cord mRNA (Clontech), 14)

Table 1

human thyroid mRNA (Clontech), 15) human conceptional umbilical cord mRNA (BioChain). esophagus mRNA (BioChain), 16) human

Table 2A
126

SEQ ID	Hit ID	Species	Description	S score	% Identity
912	gi12803215	Homo sapiens	glutathione S-transferase theta 2, clone MGC:744 IMAGE:3164017, mRNA, complete cds.	1263	100
912	gi601918	Homo sapiens	glutathione S-transferase theta 2 (GSTT2) mRNA, complete cds.	1263	100
912	gi9937244	Homo sapiens	glutathione S-transferase theta 2 (GSTT2) and glutathione S-transferase theta 1 (GSTT1) genes, complete cds.	1259	99
913	gi13872813	Homo sapiens	partial mRNA for fibulin-6 (FIBL-6 gene).	4548	93
913	gi14575679	Homo sapiens	hemicentin mRNA, complete cds.	4542	93
913	gi14041957	Homo sapiens	cDNA FLJ14438 fis, clone HEMBB1000317, weakly similar to FIBULIN-1, ISOFORM D PRECURSOR.	2795	85
914	gi13543645	Homo sapiens	D-dopachrome tautomerase, clone MGC:14637 IMAGE:4082777, mRNA, complete cds.	450	94
914	gi15930140	Homo sapiens	Similar to D-dopachrome tautomerase, clone MGC:9158 IMAGE:3902943, mRNA, complete cds.	450	94
914	gi2352915	Homo sapiens	D-dopachrome tautomerase (DDT) gene, exon 3 and complete cds.	450	94
915	gi13543645	Homo sapiens	D-dopachrome tautomerase, clone MGC:14637 IMAGE:4082777, mRNA, complete cds.	537	86
915	gi15930140	Homo sapiens	Similar to D-dopachrome tautomerase, clone MGC:9158 IMAGE:3902943, mRNA, complete cds.	537	86
915	gi2352915	Homo sapiens	D-dopachrome tautomerase (DDT) gene, exon 3 and complete cds.	537	86
916	gi4190954	Homo sapiens	gene for hepatocyte growth factor activator, complete cds.	2089	100
916	gi219681	Homo sapiens	Human mRNA for hepatocyte growth factor (HGF) activator precursor, complete cds.	2089	100
916	AAR89197	Homo sapiens	Human hepatocellular growth factor single chain precursor protein.	2089	100
917	gi5441937	Homo sapiens	BAC clone CTB-15P3 from 7q22-q31.2, complete sequence.	8964	100
917	AAY15457	Homo sapiens	Human laminin beta 4 protein.	6164	96
917	AAY15459	Homo sapiens	SEQ ID 5 of WO9919347.	6046	97
918	gi10998440	Mus musculus	EGF-related protein SCUBE1	2116	52
918	gi8052320	Mus musculus	Cegp1 protein	1124	79
918	AAY07735	Homo sapiens	Human breast-specific BS200 protein.	1125	79
919	gi13543621	Homo sapiens	parathyroid hormone-like hormone, clone MGC:14611 IMAGE:4050706, mRNA, complete cds.	905	100
919	gi190712	Homo sapiens	Human parathyroid hormone-like protein (PLP) gene, exon 4, clones lambda-PLPg(1,3,7-2).	905	100

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
919	gi190713	Homo sapiens	Human parathyroid hormone-like protein (PLP) gene, exon 5, clones lambda-PLPg(1,3,7-2).	905	100
920	gi3449294	Rattus norvegicus	MEGF6	2229	78
920	AAY72715	Homo sapiens	HFtCU08 clone human attractin-like protein.	554	43
920	AAG75479	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6243.	518	43
921	gi1296610	Homo sapiens	H.sapiens mRNA for chemokine CC-2 and CC-1.	346	100
921	gi1004267	Homo sapiens	H.sapiens gene for chemokine HCC-1.	346	100
921	gi1004269	Homo sapiens	H.sapiens mRNA for chemokine HCC-1.	346	100
922	gi35330	Homo sapiens	H.sapiens mRNA for procarboxypeptidase A1.	1126	61
922	AAR97618	Homo sapiens	Human carboxypeptidase A1.	1126	61
922	AAY28915	Homo sapiens	Human regulatory protein HRGP-1.	1126	61
923	gi790817	Homo sapiens	Human microfibril-associated glycoprotein 4 (MFAP4) mRNA, 3' end of cds.	1198	99
923	AAY42563	Homo sapiens	Human microfibril-associated glycoprotein 4 splice variant (MAG4V).	1197	100
923	AAY85177	Homo sapiens	Microfibril associated glycoprotein 4 splice variant protein sequence.	1197	100
924	AAY06940	Homo sapiens	Human secretory protein ZSIG-11.	1648	100
924	AAY66650	Homo sapiens	Membrane-bound protein PRO536.	1648	100
924	AAY50944	Homo sapiens	Human adult heart cDNA clone vf1_1 derived protein.	1648	100
925	gi13528981	Homo sapiens	apolipoprotein A-II, clone MGC:12334 IMAGE:3934476, mRNA, complete cds.	438	90
925	gi28748	Homo sapiens	Human mRNA for apolipoprotein AII precursor.	438	90
925	gi296633	Homo sapiens	Human DNA for apolipoprotein A-II.	438	90
926	AAY76156	Homo sapiens	Human secreted protein encoded by gene 33.	419	90
926	AAE04850	Homo sapiens	Human SGP014 phosphatase polypeptide related exon 4.	63	33
926	gi599904	Albinaria turrita	ATPase subunit 8	40	39
927	gi13097252	Homo sapiens	Similar to FK506 binding protein 2 (13 kDa), clone MGC:5177 IMAGE:3445148, mRNA, complete cds.	640	91
927	gi337370	Homo sapiens	Human rapamycin- and FK506-binding protein, complete cds.	640	91
927	AAQ31004_aa1	Homo sapiens	hRFKBP cDNA.	636	90
928	AAB53360	Homo sapiens	Human colon cancer antigen protein sequence SEQ ID NO:900.	230	95
928	AAG73789	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:4553.	230	95

Table 2A

128

SEQ ID	Hit ID	Species	Description	S score	% Identity
928	AAY86330	Homo sapiens	Human secreted protein HKGCO27, SEQ ID NO:245.	60	66
929	gi191613	Mus musculus	acetylcholine receptor	55	43
929	AAY07766	Homo sapiens	Human secreted protein fragment encoded from gene 23.	55	40
930	gi15157181	Agrobacterium tumefaciens	AGR_C_3718p	1148	50
930	gi14022240	Mesorhizobium loti	probable D-lactate dehydrogenase	1106	47
930	gi15075160	Sinorhizobium meliloti	PUTATIVE D-LACTATE DEHYDROGENASE (CYTOCHROME) PROTEIN	1097	48
931	AAW64548	Homo sapiens	Human epidermoid carcinoma cell line KB clone HP10179 protein.	231	100
931	AAW78146	Homo sapiens	Human secreted protein encoded by gene 21 clone HWTAZ75.	231	100
931	gi7106778	Homo sapiens	HSPC194	151	75
932	AAY24793	Homo sapiens	Human secreted protein yc2_1.	1107	99
932	gi3858883	Acanthamoeba castellanii	myosin I heavy chain kinase	143	30
932	gi13751817	Leishmania major	C2 domain protein	126	32
933	gi15028816	Homo sapiens	mRNA for beta-1,3-galactosyltransferase b3Gal-T8.	172	28
933	gi8927164	Mus musculus	core1 UDP-galactose:N-acetylgalactosamine-alpha-R beta 1,3-galactosyltransferase	173	28
933	gi8927166	Rattus norvegicus	core1 UDP-galactose:N-acetylgalactosamine-alpha-R beta 1,3-galactosyltransferase	173	26
934	AAY73383	Homo sapiens	HTRM clone 2280456 protein sequence.	1571	100
934	gi15929192	Homo sapiens	clone MGC:9522 IMAGE:3909690, mRNA, complete cds.	1487	99
934	AAG75282	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6046.	619	99
935	gi15705411	Homo sapiens	peptidoglycan recognition protein L precursor (PGLYRP) mRNA, complete cds.	3041	99
935	AAY72664	Homo sapiens	Murine peptidoglycan recognition protein-related liver protein.	1484	76
935	gi6651239	Mus musculus	TAGL-alpha	1471	76
936	AAB24450	Homo sapiens	Human secreted protein sequence encoded by gene 14 SEQ ID NO:75.	361	97
936	AAB49409	Homo sapiens	hCRF1-TM8 construct peptide.	39	69
936	gi12619689	Conus ventricosus	conotoxin scaffold VI/VII precursor	58	21
937	gi12804373	Homo sapiens	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, eta polypeptide, clone MGC:675 IMAGE:3543571, mRNA, complete cds.	1094	94
937	gi1711232	Homo sapiens	Human DNA for 14-3-3 protein eta chain, exon2 and complete cds.	1094	94

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
937	gi531590	Homo sapiens	H. sapiens gene for 14-3-3 protein.	1094	94
938	gi12804681	Homo sapiens	S100 calcium-binding protein, beta (neural), clone MGC:1323 IMAGE:3543825, mRNA, complete cds.	479	100
938	gi337730	Homo sapiens	Human S100 protein beta-subunit gene, exon 3.	479	100
938	gi16118441	Oryctolagus cuniculus	S-100 calcium-binding protein beta subunit	479	100
939	AAW75082	Homo sapiens	Human secreted protein encoded by gene 26 clone HTLEV12.	392	92
939	AAG00461	Homo sapiens	Human secreted protein, SEQ ID NO: 4542.	72	50
939	AAY86322	Homo sapiens	Human secreted protein HTLFG05, SEQ ID NO:237.	72	50
941	gi9280025	Macaca fascicularis	Nogo receptor	804	49
941	gi15080005	Homo sapiens	nogo receptor, clone MGC:19831 IMAGE:4040540, mRNA, complete cds.	792	49
941	gi12407653	Homo sapiens	Nogo receptor mRNA, complete cds.	792	49
942	AAB25674	Homo sapiens	Human secreted protein sequence encoded by gene 10 SEQ ID NO:63.	768	98
942	gi14603247	Homo sapiens	Similar to RIKEN cDNA 5730409G15 gene, clone MGC:19636 IMAGE:2822323, mRNA, complete cds.	238	90
942	AAB36613	Homo sapiens	Human FLEXHT-35 protein sequence SEQ ID NO:35.	238	90
943	AAY85678	Homo sapiens	Human kidney disease associated protein SEQ ID 10.	751	98
943	gi3127193	Rattus norvegicus	kidney-specific protein	686	75
943	gi5019275	Bos taurus	xenobiotic/medium-chain fatty acid:CoA ligase form XL-III	474	54
944	gi1197499	Homo sapiens	H.sapiens gene for C1 inhibitor exon 2 (and joined CDS).	2527	100
944	gi29535	Homo sapiens	Human gene for C1-inhibitor.	2527	100
944	gi15029894	Homo sapiens	serine (or cysteine) proteinase inhibitor, clade G (C1 inhibitor), member 1, clone MGC:17091 (IMAGE:4150091, mRNA, complete cds.	2524	99
945	gi15157854	Agrobacterium tumefaciens	AGR_C_4799p	218	38
945	gi15076099	Sinorhizobium meliloti	HYPOTHETICAL PROTEIN	233	36
945	gi9951121	Pseudomonas aeruginosa	ribosomal protein L11 methyltransferase	116	38
946	AAB03948	Homo sapiens	Human mesenchymal stem cell polypeptide.	462	98
946	AAB64909	Homo sapiens	Human secreted protein sequence encoded by gene 28 SEQ ID NO:87.	166	63
946	gi1531983	Homo sapiens	H.sapiens mRNA for CC-	77	31

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			chemokine, eotaxin variant (clone 53).		
947	gi13958036	Homo sapiens	FYVE-finger protein EIP1 mRNA, complete cds.	2917	97
947	AAY29861	Homo sapiens	Human secreted protein clone cb98_4.	2910	96
947	gi11558044	Mus musculus	FYVE-finger containing protein	2752	91
948	AAW75000	Homo sapiens	Human secreted protein encoded by gene 146 clone HSNAK17.	49	29
948	gi10176829	Arabidopsis thaliana	gene_id:MBB18.16~	79	32
949	gi13279266	Homo sapiens	clone MGC:10946 IMAGE:3631700, mRNA, complete cds.	466	100
949	AAG81435	Homo sapiens	Human AFP protein sequence SEQ ID NO:388.	466	100
949	AAE03208	Homo sapiens	Human gene 7 encoded secreted protein HNTDL21, SEQ ID NO:58.	466	100
950	AAY16787	Homo sapiens	Human secreted protein (clone dy41_2).	557	100
950	gi6682818	Sus scrofa	lectin-like oxidized LDL receptor-1	235	29
950	AAW52837	Homo sapiens	Human C-type lectin MCTL.	206	34
951	AAY41720	Homo sapiens	Human PRO792 protein sequence.	1140	87
951	AAB44276	Homo sapiens	Human PRO792 (UNQ431) protein sequence SEQ ID NO:231.	1140	87
951	AAB24055	Homo sapiens	Human PRO792 protein sequence SEQ ID NO:31.	1140	87
952	gi7670746	Homo sapiens	UDP-glucose:glycoprotein glucosyltransferase 1 precursor, mRNA, complete cds.	7968	98
952	gi13275621	synthetic construct	Rat RUGT	7313	91
952	gi7677176	Rattus norvegicus	UDP-glucose glycoprotein:glucosyltransferase precursor	7313	91
953	AAB64390	Homo sapiens	Amino acid sequence of human intracellular signalling molecule INTRA22.	409	51
953	AAG00975	Homo sapiens	Human secreted protein, SEQ ID NO: 5056.	212	46
953	gi2623224	Mus musculus	FK-506 binding protein homolog	118	30
954	gi1778061	Saccharomyces cerevisiae	transcription/repair factor TFIIH subunit Tfb3	83	31
954	gi927727	Saccharomyces cerevisiae	Tfb3p: TFIIH subunit Tfb3; YDR460W	83	31
954	gi3372804	Rattus norvegicus	focal adhesion kinase-related protein	65	25
955	AAG81399	Homo sapiens	Human AFP protein sequence SEQ ID NO:316.	1910	100
955	AAB61421	Homo sapiens	Human TANGO 300 protein.	1904	99
955	AAB23618	Homo sapiens	Human secreted protein SEQ ID NO: 36.	1902	99
956	gi296532	Homo sapiens	H.sapiens mRNA for I beta 1-6 N-acetylglucosaminyltransferase.	1043	66

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
956	gi1315909	Homo sapiens	Human beta-1,6-N-acetylglucosaminyltransferase (IGnT) gene, exon 3, complete cds.	1043	66
956	gi307298	Homo sapiens	Human I beta 1-6 N-acetylglucosaminyltransferase mRNA, complete cds.	1043	66
957	gi2065165	Homo sapiens	H.sapiens mRNA for extracellular matrix protein collagen type XIV, N-terminus.	776	93
957	AAG00322	Homo sapiens	Human secreted protein, SEQ ID NO: 4403.	482	98
957	gi288875	Gallus gallus	collagen XIV	467	68
958	gi15530201	Homo sapiens	Similar to matrix metalloproteinase 1 (interstitial collagenase), clone MGC:10479 IMAGE:3834572, mRNA, complete cds.	2381	93
958	gi30126	Homo sapiens	H.sapiens mRNA for type I interstitial collagenase.	2381	93
958	gi1688258	Homo sapiens	Human collagenase and stromelysin genes, complete cds, and metalloclastase gene, partial cds.	2381	93
959	AAY25868	Homo sapiens	Human secreted protein fragment encoded from gene 57.	993	99
959	gi4008584	Rattus norvegicus	huntingtin	61	66
959	gi6006615	Saimiri sciureus	Alanine Glyoxylate Aminotransferase	71	31
960	AAB58288	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 626.	474	85
960	gi13378304	Homo sapiens	dynein-associated protein HKM23 (km23) mRNA, complete cds.	473	98
960	gi12803327	Homo sapiens	HSPC162 protein, clone MGC:773 IMAGE:3347555, mRNA, complete cds.	473	98
961	gi930078	Homo sapiens	Human Kox16 mRNA for zinc finger protein, partial.	56	34
961	AAE01364	Homo sapiens	Human gene 13 encoded secreted protein HDPIW06, SEQ ID NO:86.	54	43
961	AAE01398	Homo sapiens	Human gene 13 encoded secreted protein HDPIW06, SEQ ID NO:120.	54	43
962	gi9956936	Mus musculus	Su(var)3-9 homolog Suv39h2	1313	84
962	gi10440094	Homo sapiens	cDNA: FLJ23414 fis, clone HEP20704.	1236	100
962	gi13623277	Homo sapiens	suppressor of variegation 3-9 (Drosophila) homolog 1, clone MGC:10376 IMAGE:3945632, mRNA, complete cds.	821	55
963	gi12654023	Homo sapiens	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 5 (13kD, B13), clone MGC:5042 IMAGE:3453236, mRNA, complete cds.	432	90
963	gi1373173	Homo sapiens	NADH:ubiquinone oxidoreductase	432	90

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			subunit B13 (B13) mRNA, complete cds.		
963	gi1698653	Homo sapiens	Human NADH:ubiquinone oxidoreductase subunit B13 mRNA, complete cds.	432	90
964	gi37347	Homo sapiens	Human mRNA for T-cell rearranging gamma gene (TRG) V(g)8-J(g)2-C(g)2.	1645	94
964	gi339407	Homo sapiens	Human T-cell receptor Ti rearranged gamma-chain mRNA V-J-C region, complete cds.	1617	93
964	gi37018	Homo sapiens	Human mRNA for T-cell receptor gamma-chain.	1439	87
965	AAE06606	Homo sapiens	Human protein having hydrophobic domain, HP10794.	566	96
965	gi6996628	Triticum aestivum	phenylalanine ammonia lyase	72	46
965	gi12667442	Rattus norvegicus	synaptotagmin VIIT1	75	34
966	gi13654639	Bos taurus	D-glucuronyl C5 epimerase	3165	97
966	gi13442978	Mus musculus	D-glucuronyl C5-epimerase	3142	95
966	gi11935177	Mus musculus	heparin/heparan sulfate:glucuronic acid C5 epimerase	3137	95
967	AAG71875	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1556.	709	86
967	AAG71443	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1124.	692	79
967	AAG71816	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1497.	684	82
968	gi12655133	Homo sapiens	Similar to CGI-63 protein, clone MGC:708 IMAGE:3139846, mRNA, complete cds.	1918	100
968	AAB73679	Homo sapiens	Human oxidoreductase protein ORP-12.	1918	100
968	gi4929595	Homo sapiens	CGI-63 protein mRNA, complete cds.	1874	98
969	gi6062874	Homo sapiens	candidate tumor suppressor protein DICE1 mRNA, complete cds.	1313	81
969	AAY15344	Homo sapiens	Tumour suppressor protein del-27.	1313	81
969	AAY28995	Homo sapiens	Tumour suppressor Del-27 protein sequence.	1313	81
970	gi387011	Homo sapiens	Human pyruvate dehydrogenase E1-alpha subunit mRNA, cds.	2187	99
970	gi12803199	Homo sapiens	pyruvate dehydrogenase (lipoamide) alpha 1, clone MGC:8609 IMAGE:2961286, mRNA, complete cds.	2049	100
970	gi35379	Homo sapiens	Human mRNA for brain pyruvate dehydrogenase (EC 1.2.4.1).	2049	100
971	gi2275569	Homo sapiens	T cell receptor beta locus, TCRBV6S4A1 to TCRBV8S1 region.	660	99
971	gi2104755	Homo sapiens	T cell receptor V-beta 23 (TCRBV) gene, partial cds.	660	99
971	gi495404	Pan troglodytes	T cell receptor beta chain	657	88
972	AAG89141	Homo sapiens	Human secreted protein, SEQ ID	1272	100

Table 2A

133

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NO: 261.		
972	gi12053273	Homo sapiens	mRNA; cDNA DKFZp434K1172 (from clone DKFZp434K1172); complete cds.	1271	99
972	gi292836	Homo sapiens	Human trichohyalin (TRHY) gene, complete cds.	146	29
973	gi12654633	Homo sapiens	protein inhibitor of activated STAT3, clone MGC:1417 IMAGE:3528679, mRNA, complete cds.	2708	96
973	gi4996563	Homo sapiens	PIAS3 mRNA for protein inhibitor of activatied STAT3, complete cds.	2708	96
973	AAE02937	Homo sapiens	Human TFRP protein.	2708	96
974	gi15099957	Homo sapiens	diacylglycerol acyltransferase 2-like protein mRNA, complete cds.	856	79
974	gi15099955	Mus musculus	diacylglycerol acyltransferase 2-like protein	676	59
974	AAY94889	Homo sapiens	Human protein clone HP02485.	578	56
975	gi7022243	Homo sapiens	cDNA FLJ10300 fis, clone NT2RM2000030.	1432	100
975	AAB92669	Homo sapiens	Human protein sequence SEQ ID NO:11033.	1432	100
975	gi3834427	Drosophila melanogaster	cytoplasmic dynein intermediate chain isoform DIC1c	134	24
976	gi12803965	Homo sapiens	clone MGC:4294 IMAGE:3636069, mRNA, complete cds.	519	100
976	gi15919713	Homo sapiens	isolate NSB11-3-K3-A10 immunoglobulin kappa chain variable region gene, partial cds.	62	32
976	gi15919629	Homo sapiens	isolate NSB11-4-K3-B6 immunoglobulin kappa chain variable region gene, partial cds.	60	33
977	gi1209685	Homo sapiens	Human salivary peroxidase mRNA, complete cds.	3408	99
977	gi163307	Bos taurus	lactoperoxidase	2906	77
977	gi11990122	Camelus dromedarius	peroxidase	2882	84
978	AAY01603	Homo sapiens	Amino acid sequence of the human defensin (Def-2C) protein.	501	97
978	gi29735	Homo sapiens	H.sapiens mRNA for corticostatin HP-4 precursor.	214	46
978	gi665927	Homo sapiens	Human corticostatin/defensin HP-4 precursor gene, complete cds.	214	46
979	AAG81415	Homo sapiens	Human AFP protein sequence SEQ ID NO:348.	848	100
979	gi11559416	Oryctolagus cuniculus	NADPH-dependent retinol dehydrogenase/reductase	75	31
980	AAR94422	Homo sapiens	Bactericidal/permeability increasing peptide (BPI.245).	63	56
980	AAR76424	Homo sapiens	Bacterial permeability-increasing peptide BPI.245.	63	56
980	AAW63485	Homo sapiens	Human BPI protein derived peptide XMP.245.	63	56
981	gi4309953	Homo sapiens	BAC clone RP11-121A8 from 7p14-p13, complete sequence.	951	95

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
981	gi296680	Homo sapiens	Human germline TCR-gamma gene variable region V-gamma 5.	570	85
981	gi4309952	Homo sapiens	BAC clone RP11-121A8 from 7p14-p13, complete sequence.	544	68
982	gi1223888	synthetic construct	T cell receptor alpha chain	1070	79
982	gi338766	Homo sapiens	Human T-cell receptor rearranged alpha-chain V-region (V-D-J) mRNA, complete cds.	994	73
982	gi3089419	Homo sapiens	SSC11 rearranged T cell receptor alpha chain (TCRAV17) gene, complete cds.	976	71
983	gi14249942	Homo sapiens	Similar to RIKEN cDNA 0610008P16 gene, clone MGC:15937 IMAGE:3537224, mRNA, complete cds.	309	46
983	AAB73512	Homo sapiens	Human transferase HTFS-19, SEQ ID NO:19.	309	46
983	gi2828262	Bos taurus	aralkyl acyl-CoA:amino acid N-acyltransferase	285	42
984	AAG71251	Homo sapiens	Human gene 9-encoded secreted protein HMSDL37, SEQ ID NO:99.	311	90
984	AAG71286	Homo sapiens	Human gene 9-encoded secreted protein HMSDL37, SEQ ID NO:135.	311	90
984	gi13096922	Mus musculus	Similar to nadrin	76	44
985	gi4519541	Mus musculus	thrombospondin type 1 domain	1299	88
985	gi13625176	Homo sapiens	clone 1 thrombospondin mRNA, complete cds.	646	46
985	AAW85607	Homo sapiens	Secreted protein clone da228_6.	646	46
986	AAG81417	Homo sapiens	Human AFP protein sequence SEQ ID NO:352.	287	100
986	gi176558	Aotus trivirgatus	involucrin (large allele)	53	40
986	AAG77243	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:8009.	36	70
987	gi2104856	Rattus norvegicus	platelet glycoprotein V	551	36
987	gi6449037	Mus musculus	platelet glycoprotein V	550	36
987	gi312502	Homo sapiens	H.sapiens GPV gene encoding platelet glycoprotein V precursor.	486	34
988	gi12803851	Homo sapiens	nucleotide binding protein 2 (E.coli MinD like), clone MGC:3473 IMAGE:3633393, mRNA, complete cds.	1385	100
988	gi14124958	Homo sapiens	nucleotide binding protein 2 (E.coli MinD like), clone MGC:15834 IMAGE:3507768, mRNA, complete cds.	1385	100
988	AAB59022	Homo sapiens	Breast and ovarian cancer associated antigen protein sequence SEQ ID 730.	1385	100
989	gi9864185	Drosophila melanogaster	Crossveinless 2	1031	35
989	gi7768636	Xenopus laevis	Kielin	911	31
989	gi9887910	Oryctolagus cuniculus	zonadhesin precursor	540	31

Table 2A

135

SEQ ID	Hit ID	Species	Description	S score	% Identity
990	gi13161011	Homo sapiens	sclerostin gene, complete cds.	417	92
990	gi13161020	Homo sapiens	sclerostin mRNA, complete cds.	417	92
990	gi13236418	Homo sapiens	SOST (SOST) mRNA, complete cds.	417	92
991	gi335148	Tacaribe virus	P-11 protein	69	39
991	gi5596437	Petunia x hybrida	Stig1	58	30
992	gi4490538	Homo sapiens	Human U266 rearranged DNA for lambda-immunoglobulin light chain.	933	81
992	gi33746	Homo sapiens	Human rearranged immunoglobulin lambda light chain mRNA.	920	80
992	AAB36212	Homo sapiens	Human immune system associated protein HISAP-10.	913	81
993	AAG03466	Homo sapiens	Human secreted protein, SEQ ID NO: 7547.	104	31
993	gi259589	Cercopithecine herpesvirus 1	glycoprotein J; gJ	88	42
993	gi3514059	Cercopithecine herpesvirus 1	glycoprotein gJ	87	42
994	gi203246	Rattus norvegicus	cell adhesion-like molecule	1739	97
994	gi514374	Homo sapiens	Human (clone pHOM) opioid-binding cell adhesion molecule mRNA, complete cds.	1666	94
994	gi586	Bos taurus	put. pre-OPCAM (AA 1 - 345)	1643	93
995	AAB88408	Homo sapiens	Human membrane or secretory protein clone PSEC0164.	1358	92
995	AAY13392	Homo sapiens	Amino acid sequence of protein PRO328.	1355	100
995	AAB01373	Homo sapiens	Neuron-associated protein.	1355	100
996	AAB85144	Homo sapiens	Human NKCR polypeptide (clone ID HMSOM53).	982	89
996	gi31332	Homo sapiens	Human mRNA for high affinity Fc receptor (FcRI).	364	42
996	AAY96226	Homo sapiens	Human high affinity Fc receptor, FcgammaRI.	364	42
997	gi14165486	Homo sapiens	clone MGC:15041 IMAGE:3831657, mRNA, complete cds.	70	37
997	gi9909361	Homo sapiens	sphingosine kinase (SPHK) mRNA, complete cds.	70	37
997	gi8132868	Homo sapiens	sphingosine kinase-1 mRNA, complete cds.	70	37
998	AAB56802	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1380.	417	100
998	gi2983321	Aquifex aeolicus	cytochrome c-type biogenesis protein	61	36
998	gi6941880	Escherichia coli	flagellin	63	35
999	AAB08732	Homo sapiens	Amino acid sequence of a human OLD-35 polypeptide.	1375	87
999	gi14042110	Homo sapiens	cDNA FLJ14531 fis, clone NT2RM2000371, weakly similar to POLYRIBONUCLEOTIDE	1265	88

Table 2A

136

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NUCLEOTIDYLTRANSFERASE (EC 2.7.7.8).		
999	AAB92684	Homo sapiens	Human protein sequence SEQ ID NO:11065.	1265	88
1000	gi199582	Mus musculus	B(2)-microglobulin	616	95
1000	gi50105	Mus musculus	beta2-microglobulin precursor (aa -20 to 99)	614	95
1000	gi199576	Mus musculus	B(2)-microglobulin	609	94
1001	gi7023273	Homo sapiens	cDNA FLJ10922 fis, clone OVARC1000420.	672	99
1001	AAB93335	Homo sapiens	Human protein sequence SEQ ID NO:12441.	672	99
1001	AAM06337	Homo sapiens	Human foetal protein, SEQ ID NO: 68.	328	75
1002	gi15559608	Homo sapiens	Similar to zinc finger protein 16 (KOX 9), clone MGC:20886 IMAGE:4549240, mRNA, complete cds.	2079	100
1002	gi55471	Mus musculus	Zfp-29	725	59
1002	gi6409345	Homo sapiens	zinc finger protein ZNF180 (ZNF180) mRNA, complete cds.	730	54
1003	gi488555	Homo sapiens	Human zinc finger protein ZNF135 mRNA, complete cds.	1664	60
1003	gi1769491	Homo sapiens	Human kruppel-related zinc finger protein (ZNF184) mRNA, partial cds.	1633	49
1003	gi10436789	Homo sapiens	cDNA FLJ14345 fis, clone THYRO1001189, weakly similar to ZINC FINGER PROTEIN 91.	1619	57
1005	AAB23641	Homo sapiens	Human secreted protein SEQ ID NO: 97.	609	100
1005	AAE01594	Homo sapiens	Human gene 12 encoded secreted protein HHSGW69, SEQ ID NO:144.	93	35
1005	gi5668598	Homo sapiens	Wiskott-Aldrich syndrome protein interacting protein (WASPIP) mRNA, partial cds.	92	35
1006	gi11493473	Homo sapiens	PRO2225	163	67
1006	gi9654986	Vibrio cholerae	autoinducer-2 production protein	64	33
1006	AAG02328	Homo sapiens	Human secreted protein, SEQ ID NO: 6409.	58	45
1008	AAM00955	Homo sapiens	Human bone marrow protein, SEQ ID NO: 431.	704	100
1008	gi4902661	Homo sapiens	Novel human gene mapping to chomosome 22.	635	100
1008	gi12052896	Homo sapiens	mRNA; cDNA DKFZp564F1978 (from clone DKFZp564F1978); complete cds.	635	100
1009	AAE01420	Homo sapiens	Human secreted protein fragment, SEQ ID NO:144.	612	100
1009	gi4028545	Homo sapiens	LIM domain only 7 (LMO7) gene, exon T and alternative splice products, partial cds.	65	44
1009	gi1620061	Paramecium bursaria Chlorella virus 1	a389R	66	46

Table 2A

137

SEQ ID	Hit ID	Species	Description	S score	% Identity
1010	gi9408382	Raja eglanteria	eos	79	26
1010	gi2062744	Xenopus laevis/gilli	Ikaros homolog	63	27
1010	gi1199604	Homo sapiens	Human zinc finger protein C2H2-25 mRNA, complete cds.	97	27
1011	gi13097207	Homo sapiens	ribosomal protein, large, P1, clone MGC:5215 IMAGE:2900846, mRNA, complete cds.	332	100
1011	gi14043204	Homo sapiens	ribosomal protein, large, P1, clone MGC:15616 IMAGE:3343021, mRNA, complete cds.	332	100
1011	gi190234	Homo sapiens	Human acidic ribosomal phosphoprotein P1 mRNA, complete cds.	332	100
1012	AAW88457	Homo sapiens	Human lysophospholipase IHLP.	1113	93
1012	AAY64648	Homo sapiens	Human lysophospholipase homology protein.	825	100
1012	gi10303289	Neurospora crassa	related to lysophospholipase	201	34
1013	gi14043417	Homo sapiens	clone IMAGE:3953868, mRNA, partial cds.	919	98
1013	gi15080096	Homo sapiens	clone MGC:20451 IMAGE:3830864, mRNA, complete cds.	919	98
1013	AAG81374	Homo sapiens	Human AFP protein sequence SEQ ID NO:266.	919	98
1014	gi13543427	Homo sapiens	Similar to RIKEN cDNA 5730469M10 gene, clone MGC:4248 IMAGE:3010078, mRNA, complete cds.	191	36
1014	AAW67858	Homo sapiens	Human secreted protein encoded by gene 52 clone HAUCC47.	191	36
1014	AAY66746	Homo sapiens	Membrane-bound protein PRO1198.	191	36
1015	AAB56791	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1369.	496	98
1015	gi2984030	Aquifex aeolicus	phosphofructokinase	70	25
1015	gi1388150	Haemophilus ducreyi	ribosomal protein L31	51	45
1016	gi29509	Homo sapiens	Human BTG1 mRNA.	655	100
1016	gi50188	Mus musculus	btg1	655	100
1016	gi293306	Mus musculus	B-cell translocation gene-1 protein	655	100
1017	gi13623633	Homo sapiens	clone MGC:13105 IMAGE:3957973, mRNA, complete cds.	2984	100
1017	AAB81188	Homo sapiens	Human zinc finger protein 52 (ZFP-52).	2389	98
1017	AAB95368	Homo sapiens	Human protein sequence SEQ ID NO:17684.	1712	100
1018	gi12002127	Homo sapiens	CCK1 protein (CCK1) mRNA, complete cds.	55	45
1018	gi9392591	Homo sapiens	CC chemokine CCL28 (SCYA28) mRNA, complete cds.	55	45
1018	gi10312152	Homo sapiens	mucosae-associated epithelial chemokine mRNA, complete cds.	55	45

Table 2A

138

SEQ ID	Hit ID	Species	Description	S score	% Identity
1019	AAB90816	Homo sapiens	Human shear stress-response protein SEQ ID NO: 140.	365	100
1019	gi10039341	Dugesia dorotocephala	Vasa-related protein PlVAS1	67	45
1019	gi15158371	Agrobacterium tumefaciens	AGR_L_42GMp	64	30
1020	gi1377897	Homo sapiens	heart protein (FHL-2) mRNA, complete cds.	1631	100
1020	gi1160932	Homo sapiens	(clone 35.3) DRAL mRNA, complete cds.	1625	99
1020	gi7209525	Homo sapiens	gene for DRAL/Slim3/FHL2, exon 5 and complete cds.	1625	99
1021	gi7770259	Homo sapiens	PRO2975	794	100
1021	gi1142588	Trypanosoma brucei	CR3	55	40
1021	gi1237130	Escherichia coli	O antigen polymerase	89	28
1022	AAG81348	Homo sapiens	Human AFP protein sequence SEQ ID NO:214.	530	63
1022	gi4206763	Arabidopsis thaliana	cell wall-plasma membrane linker protein homolog	119	30
1022	gi2623666	Canis familiaris	dentatorubro-pallidoluysian atrophy protein	101	30
1023	AAG01390	Homo sapiens	Human secreted protein, SEQ ID NO: 5471.	297	100
1023	AAB57280	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1858.	66	34
1023	gi456681	Pseudorabies virus	helicase	80	26
1024	gi1017722	Homo sapiens	Human repressor transcriptional factor (ZNF85) mRNA, complete cds.	1344	58
1024	gi14348591	Homo sapiens	KRAB zinc finger protein (KR19) mRNA, complete cds.	1342	58
1024	gi4454678	Homo sapiens	zinc finger protein 4	1321	59
1025	gi165680	Oryctolagus cuniculus	recombination activating protein	2666	91
1025	gi2576246	Mus musculus	RAG-2 protein	2594	88
1025	gi15809414	Mormoops blainvilli	recombination activator protein 2	2387	91
1026	AAG75278	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6042.	1061	95
1026	gi211896	Gallus gallus	h-caldesmon	153	29
1026	gi600255	Gallus gallus	caldesmon	153	29
1027	AAY87341	Homo sapiens	Human signal peptide containing protein HSPP-118 SEQ ID NO:118.	699	99
1027	AAY12929	Homo sapiens	Amino acid sequence of a human secreted peptide.	66	51
1027	gi930084	Homo sapiens	Human Kox21 mRNA for zinc finger protein, partial.	41	31
1028	gi173324	Candida glabrata	metallothionein II	37	71
1028	gi173326	Candida glabrata	metallothionein (MTII)	37	71
1028	gi173328	Candida glabrata	metallothionein II	37	71
1029	AAE02058	Homo sapiens	Human four disulfide core domain (FDCD)-containing protein.	598	44

Table 2A

139

SEQ ID	Hit ID	Species	Description	S score	% Identity
1029	gi12655452	Homo sapiens	mRNA for keratin associated protein 4.7 (KRTAP4.7 gene).	557	46
1029	gi12655456	Homo sapiens	partial mRNA for keratin associated protein 4.9 (KRTAP4.9 gene).	540	42
1030	gi10639287	Thermoplasma acidophilum	amino acid transporter related protein	66	29
1030	gi14325303	Thermoplasma volcanium	amino acid transporter	64	28
1030	gi15341701	Homo sapiens	clone MGC:19805 IMAGE:3939974, mRNA, complete cds.	60	34
1031	gi12653801	Homo sapiens	peptidylprolyl isomerase A (cyclophilin A), clone MGC:2351 IMAGE:3349335, mRNA, complete cds.	820	93
1031	gi12804335	Homo sapiens	clone IMAGE:2823490, mRNA, partial cds.	820	93
1031	gi13529080	Homo sapiens	peptidylprolyl isomerase A (cyclophilin A), clone MGC:12404 IMAGE:3935025, mRNA, complete cds.	820	93
1032	gi207621	Rattus norvegicus	uromodulin	98	36
1032	gi912817	Rattus sp.	Tamm-Horsfall protein; THP	98	36
1032	gi602768	Mytilus galloprovincialis	adhesive plaque matrix protein precursor	86	29
1033	AAG03055	Homo sapiens	Human secreted protein, SEQ ID NO: 7136.	269	100
1033	AAY73471	Homo sapiens	Human secreted protein clone ydl53_1 protein sequence SEQ ID NO:164.	62	33
1034	AAB38043	Homo sapiens	Fragment of human secreted protein encoded by gene 10 clone HWHGP71.	124	38
1034	gi5305335	Mycobacterium tuberculosis	proline-rich mucin homolog	114	36
1034	gi22599	Arabidopsis thaliana	APG	112	37
1035	gi6467206	Homo sapiens	GIOT-4 mRNA for gonadotropin inducible transcription repressor-4, complete cds.	2004	60
1035	AAY58627	Homo sapiens	Protein regulating gene expression PRGE-20.	1732	56
1035	gi3953593	Mus musculus	Zinc finger protein s11-6	1720	54
1036	AAB95007	Homo sapiens	Human protein sequence SEQ ID NO:16685.	518	86
1036	gi45906	Proteus vulgaris	hlyC protein (AA 1-54)	72	45
1036	AAB56607	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1185.	74	56
1037	AAY27616	Homo sapiens	Human secreted protein encoded by gene No. 50.	562	99
1037	gi12957417	Casuarius bennetti	ATPase subunit 8	62	35
1037	gi332009	Murine leukemia virus	p15-gag protein	57	27

Table 2A

140

SEQ ID	Hit ID	Species	Description	S score	% Identity
1038	gi15822827	Homo sapiens	mRNA for pendrin-like protein 1, complete cds.	1154	39
1038	gi13344999	Homo sapiens	solute carrier family 26 member 6 (SLC26A6) mRNA, complete cds.	1300	37
1038	AAY71067	Homo sapiens	Human membrane transport protein, MTRP-12.	1297	37
1039	AAY57945	Homo sapiens	Human transmembrane protein HTMPN-69.	780	100
1039	AAY76141	Homo sapiens	Human secreted protein encoded by gene 18.	780	100
1039	AAB24037	Homo sapiens	Human PRO1555 protein sequence SEQ ID NO:49.	356	47
1040	AAY59672	Homo sapiens	Secreted protein 108-006-5-0-E6-FL.	553	83
1040	gi10435214	Homo sapiens	cDNA FLJ13263 fis, clone OVARC1000924.	549	82
1040	AAB94543	Homo sapiens	Human protein sequence SEQ ID NO:15290.	549	82
1041	AAY92710	Homo sapiens	Human membrane-associated protein Zsig24.	704	97
1041	AAY87250	Homo sapiens	Human signal peptide containing protein HSPP-27 SEQ ID NO:27.	566	99
1041	AAG00627	Homo sapiens	Human secreted protein, SEQ ID NO: 4708.	260	100
1042	gi14572521	Homo sapiens	NEPH1 (NEPH1) mRNA, complete cds.	1512	51
1042	AAB37996	Homo sapiens	Human secreted protein encoded by gene 13 clone HIBEU15.	1164	92
1042	gi10434261	Homo sapiens	cDNA FLJ12646 fis, clone NT2RM4001987, weakly similar to NEURAL CELL ADHESION MOLECULE 1, LARGE ISOFORM PRECURSOR.	1035	41
1043	gi29806	Homo sapiens	Human mRNA for CD59, an LY-6-like protein regulating complement membrane attack.	710	100
1043	gi825637	Homo sapiens	H.sapiens gene for CD59 protein, exon 2.	710	100
1043	gi29815	Homo sapiens	Human mRNA for CD59 antigen.	710	100
1044	gi6841140	Homo sapiens	HSPC100 mRNA, partial cds.	498	100
1044	gi2828808	Bacillus subtilis	glucose transporter	111	25
1044	gi9106658	Xylella fastidiosa 9a5c	glucose/galactose transporter	140	23
1045	AAB56632	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1210.	3377	99
1045	gi13097708	Homo sapiens	ribophorin II, clone MGC:1817 IMAGE:3546673, mRNA, complete cds.	3152	100
1045	gi5834424	Homo sapiens	RIBIIR gene (partial), exon 1 and joined CDS.	3152	100
1046	gi13182757	Homo sapiens	HTPAP mRNA, complete cds.	598	100
1046	AAG89279	Homo sapiens	Human secreted protein, SEQ ID NO: 399.	598	100
1046	AAB70690	Homo sapiens	Human hDPP protein sequence SEQ ID NO:7.	598	100

Table 2A

141

SEQ ID	Hit ID	Species	Description	S score	% Identity
1047	gi2276448	Homo sapiens	Human MHC class I HLA-A (HLA-A-0302-new allele) mRNA, complete cds.	1794	93
1047	gi6815812	Homo sapiens	MHC class I antigen heavy chain (HLA-A) mRNA, HLA-A*0302 allele, complete cds.	1794	93
1047	gi1245460	Homo sapiens	Human MHC class I HLA-A allele (HLA-A) mRNA, complete cds.	1786	92
1048	AAB95392	Homo sapiens	Human protein sequence SEQ ID NO:17743.	567	78
1048	AAB29645	Homo sapiens	Human membrane-associated protein HUMAP-2.	548	70
1048	AAB95049	Homo sapiens	Human protein sequence SEQ ID NO:16845.	396	78
1049	gi14017773	Mus musculus	Cg10671-like	1517	96
1049	gi14017764	Mus musculus	CG10671-like	1517	96
1049	gi16198091	Drosophila melanogaster	LD30661p	184	30
1050	AAG81431	Homo sapiens	Human AFP protein sequence SEQ ID NO:380.	503	97
1050	gi6707026	Monodelphis domestica	immunoglobulin light chain kappa	108	26
1050	gi6653413	Oryctolagus cuniculus	immunoglobulin light chain VJ kappa region	102	27
1051	gi12836893	Gallus gallus	IPR328-like protein	158	29
1051	gi3093433	Homo sapiens	Chromosome 16 BAC clone CIT987SK-625P11, complete sequence.	151	29
1051	gi4558766	Homo sapiens	neuronal voltage gated calcium channel gamma-3 subunit mRNA, complete cds.	151	29
1052	gi4337100	Homo sapiens	MSH55 gene, partial cds; and CLIC1, DDAH, G6b, G6c, G5b, G6d, G6e, G6f, BAT5, G5b, CSK2B, BAT4, G4, Apo M, BAT3, BAT2, AIF-1, 1C7, LST-1, LTB, TNF, and LTA genes, complete cds.	400	100
1052	gi5304878	Homo sapiens	genes encoding RNCC protein, DDAH protein, Ly6-C protein, Ly6-D protein and immunoglobulin receptor.	400	100
1052	AAY27597	Homo sapiens	Human secreted protein encoded by gene No. 31.	400	100
1053	AAB88325	Homo sapiens	Human membrane or secretory protein clone PSEC0020.	912	99
1053	AAB53257	Homo sapiens	Human colon cancer antigen protein sequence SEQ ID NO:797.	859	99
1053	gi13325409	Homo sapiens	clone IMAGE:3845253, mRNA, partial cds.	774	100
1054	gi1234787	Xenopus laevis	up-regulated by thyroid hormone in tadpoles; expressed specifically in the tail and only at metamorphosis; membrane bound or extracellular protein; C-terminal basic region	917	61
1054	gi10435980	Homo sapiens	cDNA FLJ13840 fis, clone	812	62

Table 2A

142

SEQ ID	Hit ID	Species	Description	S score	% Identity
			THYRO1000783, moderately similar to Xenopus laevis tail-specific thyroid hormone up-regulated (gene 5) mRNA.		
1054	AAB94773	Homo sapiens	Human protein sequence SEQ ID NO:15860.	812	62
1055	gi4099139	Homo sapiens	Human P2X4 purinoreceptor gene, exons 9, 10, 11 and 12 and complete cds.	2014	100
1055	gi4099121	Homo sapiens	Human P2X4 purinoreceptor mRNA, complete cds.	2014	100
1055	AAW47066	Homo sapiens	Human brain P2X-1 receptor polypeptide.	2014	100
1056	AAE03560	Homo sapiens	Human differentially expressed kidney cDNA 22360 encoded protein.	1020	99
1056	gi15637151	Beta vulgaris	glycine decarboxylase subunit P	62	36
1056	gi5824822	Caenorhabditis elegans	Y53F4A.2	62	25
1057	gi972946	Mus musculus	ZP1 precursor	2217	67
1057	gi1113794	Mus musculus	zona pellucida	2210	67
1057	gi2804566	Rattus norvegicus	zona pellucida 1 glycoprotein	2200	67
1058	gi15779156	Homo sapiens	Similar to RIKEN cDNA 1810073N04 gene, clone MGC:15523 IMAGE:3028844, mRNA, complete cds.	1858	100
1058	gi13097045	Mus musculus	Similar to RIKEN cDNA 1810073N04 gene	1719	91
1058	gi603254	Saccharomyces cerevisiae	Yel064cp	319	27
1059	AAW03516	Homo sapiens	Prostaglandin DP receptor.	1467	100
1059	gi940379	Homo sapiens	Human DP prostanoid receptor (PTGDR) gene, 5' region and partial cds.	1467	100
1059	gi4567038	Rattus norvegicus	prostaglandin D2 receptor	1127	77
1060	gi2811122	Xenopus laevis	NaDC-2	1274	56
1060	gi1098557	Homo sapiens	Human renal sodium/dicarboxylate cotransporter (NADC1) mRNA, complete cds.	1618	55
1060	gi3168585	Rattus norvegicus	sodium-dependent dicarboxylate transporter	1614	54
1061	gi3036840	Homo sapiens	mRNA for cystinosin.	1686	88
1061	gi3036851	Homo sapiens	CTNS gene, exon 3, flanking intronic regions and joined CDS.	1686	88
1061	gi7239176	Homo sapiens	vanilloid receptor gene, partial sequence; CARKL and CTNS genes, complete cds; TIP1 gene, partial cds; P2X5b and P2X5a genes, complete cds; and HUMINAE gene, partial cds.	1686	88
1062	gi41077	Escherichia coli	cal protein precursor (aa 1-51)	63	42
1062	gi6474978	Schizosaccharomyces pombe	Amino acid permease	62	27
1062	AAB40157	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:67.	60	27

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
1063	AAY36071	Homo sapiens	Extended human secreted protein sequence, SEQ ID NO. 456.	1252	92
1063	gi15990604	Homo sapiens	RAE-1-like transcript 4 mRNA, complete cds.	1022	97
1063	AAG00501	Homo sapiens	Human secreted protein, SEQ ID NO: 4582.	533	95
1064	gi14290560	Homo sapiens	Similar to transmembrane 7 superfamily member 2, clone MGC:9286 IMAGE:3874367, mRNA, complete cds.	1548	98
1064	gi15277509	Homo sapiens	Similar to transmembrane 7 superfamily member 2, clone MGC:17157 IMAGE:4214662, mRNA, complete cds.	1548	97
1064	gi3211722	Homo sapiens	lamin B receptor homolog TM7SF2 (TM7SF2) mRNA, complete cds.	1132	77
1066	AAE06611	Homo sapiens	Human protein having hydrophobic domain, HP03696.	1552	99
1066	gi13676372	Homo sapiens	clone MGC:4595 IMAGE:3345729, mRNA, complete cds.	469	50
1066	AAY41690	Homo sapiens	Human PRO329 protein sequence.	469	50
1067	AAG72119	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1800.	1036	81
1067	gi3769616	Rattus norvegicus	olfactory receptor	887	81
1067	gi12054453	Homo sapiens	6M1-18*01 gene for olfactory receptor, cell line BM28.7.	547	42
1068	gi7106778	Homo sapiens	HSPC194	530	95
1068	AAW64547	Homo sapiens	Human stomach cancer cell clone HP10175 protein.	530	95
1068	AAY35949	Homo sapiens	Extended human secreted protein sequence, SEQ ID NO. 198.	530	95
1069	gi402185	Homo sapiens	H.sapiens ALK-2 mRNA.	1572	100
1069	gi338219	Homo sapiens	Human novel serine kinase receptor mRNA, complete cds.	1572	100
1069	AAR85206	Homo sapiens	Human ALK-2.	1572	100
1070	gi4128041	Homo sapiens	claudin-9 (CLDN9) gene.	227	35
1070	AAB64401	Homo sapiens	Amino acid sequence of human intracellular signalling molecule INTRA33.	227	35
1070	gi4325296	Mus musculus	claudin-9	214	34
1071	gi1405893	Homo sapiens	H.sapiens MICA gene.	1896	93
1071	AAW60043	Homo sapiens	Human MHC class I chain-related gene A (MICA) polypetide.	1896	93
1071	gi508492	Homo sapiens	Human MHC class I-related protein mRNA, complete cds.	1838	90
1072	gi15292437	Drosophila melanogaster	LP10272p	444	39
1072	gi4877582	Homo sapiens	lipoma HMGIC fusion partner (LHFP) mRNA, complete cds.	221	28
1072	AAY87336	Homo sapiens	Human signal peptide containing protein HSPP-113 SEQ ID NO:113.	221	28
1073	AAB58289	Homo sapiens	Lung cancer associated	1338	100

Table 2A

144

SEQ ID	Hit ID	Species	Description	S score	% Identity
			polypeptide sequence SEQ ID 627.		
1073	AAY29332	Homo sapiens	Human secreted protein clone pe584_2 protein sequence.	1338	100
1073	AAB75295	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:114.	1247	100
1074	AAB58289	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 627.	1338	100
1074	AAY29332	Homo sapiens	Human secreted protein clone pe584_2 protein sequence.	1338	100
1074	AAB75295	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:114.	1247	100
1075	AAE04780	Homo sapiens	Human vesicle trafficking protein-23 (VETRP-23) protein.	864	100
1075	AAB28629	Homo sapiens	Human B11Ag1 antigen splice isoform B11C-8.	546	39
1075	AAB28630	Homo sapiens	Human B11Ag1 antigen splice isoform B11C-9-16.	546	39
1076	gi15811373	Mus musculus	G protein coupled receptor affecting testicular descent	1269	83
1076	gi10441730	Homo sapiens	leucine-rich repeat-containing G protein-coupled receptor 7 (LGR7) mRNA, complete cds.	1004	62
1076	AAY42170	Homo sapiens	Human LGR7 long form protein sequence.	1004	62
1077	gi13544043	Homo sapiens	clone IMAGE:3627317, mRNA, partial cds.	1257	52
1077	gi14249892	Homo sapiens	spinster-like protein, clone MGC:15767 IMAGE:3501826, mRNA, complete cds.	1257	52
1077	gi12003980	Homo sapiens	spinster-like protein mRNA, complete cds.	1257	52
1078	AAB85029	Homo sapiens	Protein encoded by BAP28 cDNA consisting of exons 1 to 45.	1618	68
1078	AAW54099	Homo sapiens	Homo sapiens BAP28 sequence.	1617	67
1078	gi7022341	Homo sapiens	cDNA FLJ10359 fis, clone NT2RM2001243.	1588	92
1079	gi13491841	Rattus norvegicus	gamma-glutamyltranspeptidase-like protein	209	34
1079	AAG75266	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6030.	217	100
1079	gi57806	Rattus sp.	gamma-glutamyltranspeptidase (AA 1-568)	186	33
1080	gi5262646	Homo sapiens	mRNA; cDNA DKFZp434I091 (from clone DKFZp434I091); partial cds.	2917	100
1080	gi6807820	Homo sapiens	mRNA; cDNA DKFZp434A2372 (from clone DKFZp434A2372); partial cds.	629	100
1080	gi1408182	Homo sapiens	Human LGN protein mRNA, complete cds.	282	31
1081	gi4878022	Homo sapiens	acyl-coenzyme A: cholesterol acyltransferase mRNA, complete cds.	930	98
1081	AAR53079	Homo sapiens	Acetyl coenzyme A: cholesterol acetyltransferase (ACAT).	925	98

Table 2A

145

SEQ ID	Hit ID	Species	Description	S score	% Identity
1081	AAW38416	Homo sapiens	Human acyl-coenzyme A:cholesterol acyltransferase I.	925	98
1082	gi458938	Saccharomyces cerevisiae	Yhr186cp	1004	58
1082	gi5921144	Schizosaccharomyces pombe	mip1	2049	52
1082	gi9366720	Trypanosoma brucei	possible t16o11.22 protein.	277	45
1083	gi402187	Homo sapiens	H.sapiens ALK-3 mRNA.	1664	99
1083	AAR55368	Homo sapiens	Human Activin receptor-like kinase 3 (hALK-3).	1664	99
1083	AAR85207	Homo sapiens	Human ALK-3.	1664	99
1084	gi609354	Xenopus laevis	BMP receptor	1485	90
1084	gi2446992	Xenopus laevis	'BMP receptor'	1483	89
1084	gi3551073	Danio rerio	type I serin/threonine kinase receptor	1451	87
1085	AAW90873	Homo sapiens	Human brain-specific dysferlin protein.	1340	53
1085	gi3600028	Homo sapiens	dysferlin mRNA, complete cds.	1340	53
1085	AAY82643	Homo sapiens	Human dysferlin protein sequence SEQ ID NO:2.	1340	53
1086	gi3600028	Homo sapiens	dysferlin mRNA, complete cds.	1866	49
1086	AAY82643	Homo sapiens	Human dysferlin protein sequence SEQ ID NO:2.	1866	49
1086	AAW90868	Homo sapiens	Human dysferlin protein.	1866	49
1087	AAY92321	Homo sapiens	Human alpha-2-delta-D calcium channel subunit.	5881	99
1087	AAB62262	Homo sapiens	Human calcium channel alpha2delta subunit.	5745	99
1087	AAY92323	Homo sapiens	Human alpha-2-delta-D polypeptide from splice variant 1.	4976	99
1088	gi2104689	Mus musculus	alpha glucosidase II, alpha subunit	1796	55
1088	gi1890664	Sus scrofa	glucosidase II	1792	55
1088	gi7672977	Homo sapiens	glucosidase II alpha subunit mRNA, complete cds.	1783	55
1089	AAY01143	Homo sapiens	Secreted protein encoded by gene 9 clone HSIDY06.	238	100
1089	gi6692409	Otus longicornis	cytochrome b	64	38
1089	gi10312185	Otus watsonii	cytochrome b	61	43
1090	gi13477285	Homo sapiens	structure specific recognition protein 1, clone MGC:1608 IMAGE:3536048, mRNA, complete cds.	3683	100
1090	gi184242	Homo sapiens	Human high mobility group box (SSRP1) mRNA, complete cds.	3683	100
1090	AAR38744	Homo sapiens	Human SSRP.	3683	100
1091	gi177814	Homo sapiens	Human alpha-1-antitrypsin-related protein gene, exons 3, 4 and 5.	1925	90
1091	AAP50132	Homo sapiens	Sequence of the predominant form of human alpha-1-antitrypsin(AT).	828	59
1091	gi15990507	Homo sapiens	Similar to serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1, clone MGC:23330 IMAGE:4644658, mRNA, complete cds.	1409	66

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
1092	AAB56819	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1397.	1054	100
1092	gi15981490	Yersinia pestis	protease	137	28
1092	gi9654995	Vibrio cholerae	protease DegS	135	29
1093	gi13543976	Homo sapiens	clone IMAGE:3603998, mRNA, partial cds.	1523	100
1093	gi15930240	Homo sapiens	Similar to CAP-binding protein complex interacting protein 2, clone MGC:9962 IMAGE:3878011, mRNA, complete cds.	1523	100
1093	AAY57946	Homo sapiens	Human transmembrane protein HTMPN-70.	1128	100
1094	AAY53031	Homo sapiens	Human secreted protein clone dd426_1 protein sequence SEQ ID NO:68.	590	93
1094	AAY71062	Homo sapiens	Human membrane transport protein, MTRP-7.	158	26
1094	gi15529155	Arabidopsis thaliana	AT3g30390/T6J22_16	135	22
1095	gi4959568	Homo sapiens	nuclear pore complex interacting protein NPIP (NPIP) mRNA, complete cds.	1650	94
1095	gi2342743	Homo sapiens	Human Chromosome 16 BAC clone CIT987SK-A-589H1, complete sequence.	1627	93
1095	AAY10915	Homo sapiens	Amino acid sequence of a human secreted peptide.	760	88
1096	gi7022118	Homo sapiens	cDNA FLJ10213 fis, clone HEMBA1006474, weakly similar to 40 KD PROTEIN.	1074	99
1096	AAB92609	Homo sapiens	Human protein sequence SEQ ID NO:10874.	1074	99
1096	gi456886	Borna disease virus	p40	396	41
1097	gi38432	Homo sapiens	H.sapiens gene for mitochondrial ATP synthase c subunit (P2 form).	612	90
1097	gi285910	Homo sapiens	P2 mRNA for ATP synthase subunit c, complete cds.	612	90
1097	AAB43694	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1139.	612	90
1098	gi897827	Homo sapiens	Human iron-responsive element-binding protein/iron regulatory protein 2 (IRE-BP2/IRP2) mRNA, partial cds.	4968	99
1098	gi897581	Homo sapiens	Human iron-regulatory protein 2 (IRP2) mRNA, partial cds.	4909	99
1098	gi897583	Rattus norvegicus	iron-regulatory protein 2	4700	93
1099	gi5732908	Homo sapiens	BPAG1n3 (BPAG1) mRNA, partial cds.	75	32
1099	AAY87302	Homo sapiens	Human signal peptide containing protein HSPP-79 SEQ ID NO:79.	61	35
1099	AAY76213	Homo sapiens	Human secreted protein encoded by gene 90.	61	35
1100	gi5732908	Homo sapiens	BPAG1n3 (BPAG1) mRNA,	75	32

Table 2A

147

SEQ ID	Hit ID	Species	Description	S score	% Identity
			partial cds.		
1100	AAY87302	Homo sapiens	Human signal peptide containing protein HSPP-79 SEQ ID NO:79.	61	35
1100	AAY76213	Homo sapiens	Human secreted protein encoded by gene 90.	61	35
1101	gi5732908	Homo sapiens	BPAG1n3 (BPAG1) mRNA, partial cds.	75	32
1101	AAY87302	Homo sapiens	Human signal peptide containing protein HSPP-79 SEQ ID NO:79.	61	35
1101	AAY76213	Homo sapiens	Human secreted protein encoded by gene 90.	61	35
1102	AAY86234	Homo sapiens	Human secreted protein HNTNC20, SEQ ID NO:149.	88	31
1102	gi5430769	Arabidopsis thaliana	Similar to somatic embryogenesis receptor-like kinase	88	32
1102	AAB24074	Homo sapiens	Human PRO1153 protein sequence SEQ ID NO:49.	79	22
1103	gi13447199	Homo sapiens	sphingosine-1-phosphate phosphatase mRNA, complete cds.	1931	98
1103	gi9623190	Mus musculus	sphingosine-1-phosphate phosphohydrolase	1692	83
1103	gi15778670	Mus musculus	sphingosine-1-phosphate phosphatase	1692	83
1104	gi12052824	Homo sapiens	mRNA; cDNA DKFZp564H1562 (from clone DKFZp564H1562); complete cds.	1544	100
1104	gi5326797	Homo sapiens	junctional adhesion molecule (JAM1) mRNA, complete cds.	1544	100
1104	gi5731339	Homo sapiens	junctional adhesion molecule-1 mRNA, complete cds.	1544	100
1105	gi296636	Homo sapiens	Human apoC-II gene for preproapolipoprotein C-II.	506	100
1105	gi757915	Homo sapiens	Human mRNA for lipoprotein apoCII.	506	100
1105	gi178836	Homo sapiens	APOC2 gene, complete sequence; and apolipoprotein C-II (APOC2) gene, complete cds.	506	100
1106	gi13097159	Homo sapiens	tumor protein, translationally-controlled 1, clone MGC:5308 IMAGE:2899964, mRNA, complete cds.	794	97
1106	gi7573519	Homo sapiens	TPT1 gene for translationally controlled tumor protein (TCTP), exons 1-6.	794	97
1106	gi37496	Homo sapiens	Human mRNA for translationally controlled tumor protein.	794	97
1107	gi12082725	Mus musculus	B cell phosphoinositide 3-kinase adaptor	3523	84
1107	gi12082723	Gallus gallus	B cell phosphoinositide 3-kinase adaptor	2821	69
1107	AAB43816	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1261.	1257	98
1108	gi10177622	Arabidopsis thaliana	gene_id:K6M13.11~	201	39
1108	gi10437414	Homo sapiens	cDNA: FLJ21330 fis, clone COL02466.	165	34

Table 2A

148

SEQ ID	Hit ID	Species	Description	S score	% Identity
1108	gi499199	Schizosaccharomyces pombe	uvi22	155	33
1109	gi13436446	Homo sapiens	myosin regulatory light chain, clone MGC:4405 IMAGE:2906108, mRNA, complete cds.	881	99
1109	gi829623	Homo sapiens	Human myosin regulatory light chain mRNA, complete cds.	881	99
1109	gi15076511	Homo sapiens	MLC-2 mRNA for nonmuscle myosin light chain 2, complete cds.	881	99
1110	gi5305502	Mus musculus	phospholemman precursor	153	45
1110	gi1916012	Rattus norvegicus	phospholemman chloride channel	142	53
1110	gi1916010	Homo sapiens	Human phospholemman chloride channel mRNA, complete cds.	133	47
1111	gi13272522	Homo sapiens	transcription factor NYD-sp10 mRNA, complete cds.	1344	90
1111	gi14278918	Homo sapiens	mRNA for transcription factor RFX4, complete cds.	1166	82
1111	gi583352	synthetic construct	does not include the start ot stop codon	162	29
1112	AAB47296	Homo sapiens	PRO4401 polypeptide.	1062	58
1112	AAY22496	Homo sapiens	Human secreted protein sequence clone cn621_8.	1062	58
1112	gi14042441	Homo sapiens	cDNA FLJ14724 fis, clone NT2RP3001716.	400	43
1113	gi15341863	Homo sapiens	Similar to RIKEN cDNA 2900052F21 gene, clone MGC:21625 IMAGE:4214683, mRNA, complete cds.	758	98
1113	AAY33297	Homo sapiens	Human membrane spanning protein MSP-4.	758	98
1113	AAB61149	Homo sapiens	Human NOV18 protein.	758	98
1114	gi11125139	Homo sapiens	Novel human gene mapping to chromosome 22.	476	89
1114	AAY94914	Homo sapiens	Human secreted protein clone pw337_6 protein sequence SEQ ID NO:34.	476	89
1114	gi602584	Methanosarcina mazei	cytochrome b	75	33
1115	AAG72267	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1948.	1281	100
1115	AAG72407	Homo sapiens	Human OR-like polypeptide query sequence, SEQ ID NO: 2088.	1281	100
1115	AAG72270	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1951.	997	73
1116	gi12002782	Homo sapiens	olfactory receptor-like protein JCG2 (JCG2) mRNA, partial cds.	1538	100
1116	gi12002784	Homo sapiens	olfactory receptor-like protein JCG2 (JCG2) gene, complete cds.	1538	100
1116	AAE04555	Homo sapiens	Human G-protein coupled receptor-11 (GCREC-11) protein.	1538	100
1117	gi5802817	Homo sapiens	endogenous retrovirus HERV-K104 long terminal repeat, complete sequence; and Gag protein (gag) and envelope protein (env) genes, complete cds.	479	77

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
1117	gi1469243	Human endogenous retrovirus K	pol/env	466	77
1117	gi3150438	Human endogenous retrovirus K	pol-env	466	77
1118	AAG89341	Homo sapiens	Human secreted protein, SEQ ID NO: 461.	501	99
1118	gi6651037	Mus musculus domesticus	similar to RNA binding protein	411	96
1118	AAG02095	Homo sapiens	Human secreted protein, SEQ ID NO: 6176.	167	55
1119	AAB20155	Homo sapiens	Secreted protein SECP1.	3983	51
1119	gi3080663	Homo sapiens	PAC clone RP5-1168D11 from 7p21-p22, complete sequence.	1408	47
1119	gi2897863	Homo sapiens	BAC clone GS1-164B5 from 7p21-p22, complete sequence.	1340	50
1120	gi32329	Homo sapiens	Human HMG-17 gene for non-histone chromosomal protein HMG-17.	429	94
1120	gi306864	Homo sapiens	Human non-histone chromosomal protein HMG-17 mRNA, complete cds.	429	94
1120	AAB28199	Homo sapiens	Human HMG-17 non histone chromosomal protein.	429	94
1121	gi13905022	Homo sapiens	Similar to interferon induced transmembrane protein 3 (1-8U), clone MGC:5225 IMAGE:2986145, mRNA, complete cds.	444	69
1121	gi14250038	Homo sapiens	Similar to interferon induced transmembrane protein 3 (1-8U), clone MGC:14565 IMAGE:4075453, mRNA, complete cds.	436	68
1121	gi23398	Homo sapiens	Human 1-8U gene from interferon-inducible gene family.	435	67
1122	gi7019933	Homo sapiens	cDNA FLJ20071 fis, clone COL01887.	2163	100
1122	AAB36618	Homo sapiens	Human FLEXHT-40 protein sequence SEQ ID NO:40.	1051	100
1122	AAW88957	Homo sapiens	Polypeptide fragment encoded by gene 128.	902	100
1123	AAB60112	Homo sapiens	Human transport protein TPPT-32.	775	100
1123	gi11558029	Homo sapiens	boct gene for organic cation transporter.	382	48
1123	gi9663117	Homo sapiens	mRNA for organic cation transporter.	382	48
1124	AAR28120	Homo sapiens	NKG2 transmembrane protein-D.	727	95
1124	gi2980865	Homo sapiens	NKG2D gene, exons 2-5 and joined mRNA and CDS.	724	94
1124	gi35063	Homo sapiens	Human mRNA for NKG2-D gene.	724	94
1125	gi7767239	Homo sapiens	nectin-like protein 2 (NECL2) mRNA, complete cds.	612	39
1125	gi4519602	Homo sapiens	IGSF4 gene, exon 10 and complete cds.	609	38
1125	AAY45092	Homo sapiens	Human lymphoid derived dendritic	609	38

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			cell adhesion molecule.		
1126	gi7020365	Homo sapiens	cDNA FLJ20336 fis, clone HEP11722.	4316	99
1126	gi10435830	Homo sapiens	cDNA FLJ13727 fis, clone PLACE3000103.	3079	99
1126	AAB94738	Homo sapiens	Human protein sequence SEQ ID NO:15776.	3079	99
1127	AAB75594	Homo sapiens	Human secreted protein sequence encoded by gene 37 SEQ ID NO:148.	678	99
1127	AAB75542	Homo sapiens	Human secreted protein sequence encoded by gene 37 SEQ ID NO:96.	294	100
1127	gi1864011	Homo sapiens	mRNA for SHPS-1, complete cds.	261	43
1128	gi7020372	Homo sapiens	cDNA FLJ20340 fis, clone HEP12374.	1692	99
1128	gi4098525	Prochlorothrix hollandica	CytM	80	31
1128	gi324932	Influenza A virus	PA polymerase	67	38
1129	gi7023403	Homo sapiens	cDNA FLJ11006 fis, clone PLACE1003045.	499	59
1129	AAB93412	Homo sapiens	Human protein sequence SEQ ID NO:12616.	499	59
1129	gi13542919	Mus musculus	Similar to mucolipin 1	432	61
1130	gi15488920	Homo sapiens	Similar to RIKEN cDNA 2010107G23 gene, clone MGC:9596 IMAGE:3896656, mRNA, complete cds.	107	42
1130	AAW74777	Homo sapiens	Human secreted protein encoded by gene 48 clone HFCAI74.	74	40
1130	gi1304441	Pseudorabies virus	Rsp40	69	32
1131	gi10119918	Homo sapiens	brain otoferlin short isoform (OTOF) mRNA, complete cds.	1315	49
1131	gi10119916	Homo sapiens	brain otoferlin long isoform (OTOF) mRNA, complete cds.	1315	49
1131	gi4588470	Homo sapiens	otoferlin (OTOF) mRNA, complete cds.	2214	43
1132	gi1006665	Homo sapiens	H.sapiens mRNA for transcript associated with monocyte to macrophage differentiation.	442	98
1132	gi15155898	Agrobacterium tumefaciens	AGR_C_1653p	167	31
1132	gi15023850	Clostridium acetobutylicum	Predicted membrane protein, hemolysin III homolog	117	44
1133	AAG71803	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1484.	1494	92
1133	AAG71805	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1486.	1205	92
1133	AAG71807	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1488.	1178	70
1134	AAY70455	Homo sapiens	Human membrane channel protein-5 (MECHP-5).	609	91
1134	AAV83992_aa1	Homo sapiens	Nucleic acid encoding a protein with water channel activity.	608	92
1134	gi2317274	Homo sapiens	mRNA for aquaporin adipose,	608	92

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			complete cds.		
1135	gi3319326	Homo sapiens	protein associated with Myc mRNA, complete cds.	111	33
1136	gi2463632	Homo sapiens	monocarboxylate transporter homologue MCT6 mRNA, complete cds.	2574	97
1136	gi10880482	Mus musculus	monocarboxylate transporter 4	393	39
1136	gi2463634	Homo sapiens	monocarboxylate transporter (MCT3) mRNA, complete cds.	394	40
1137	gi13528675	Homo sapiens	ATPase, H+ transporting, lysosomal (vacuolar proton pump) 16kD, clone MGC:3723 IMAGE:3618755, mRNA, complete cds.	705	94
1137	gi13938484	Homo sapiens	ATPase, H+ transporting, lysosomal (vacuolar proton pump) 16kD, clone MGC:16271 IMAGE:3831016, mRNA, complete cds.	705	94
1137	gi14043553	Homo sapiens	ATPase, H+ transporting, lysosomal (vacuolar proton pump) 16kD, clone MGC:12873 IMAGE:4127653, mRNA, complete cds.	705	94
1138	gi15080314	Homo sapiens	Similar to RIKEN cDNA 0610010D20 gene, clone MGC:20590 IMAGE:4310241, mRNA, complete cds.	514	100
1138	gi10580053	Halobacterium sp. NRC-1	dihydrodipicolinate synthase; DapA	379	33
1138	gi1590977	Methanococcus jannaschii	dihydrodipicolinate synthase (dapA)	336	29
1139	AAE06614	Homo sapiens	Human protein having hydrophobic domain, HP03974.	1394	100
1139	gi520469	Oryctolagus cuniculus	597 aa protein related to Na/glucose cotransporters	1231	85
1139	gi338055	Homo sapiens	Human Na+/glucose cotransporter 1 mRNA, complete cds.	705	57
1140	gi6708478	Mus musculus	formin-like protein	1571	66
1140	gi4101720	Mus musculus	lymphocyte specific formin related protein	1543	65
1140	gi1914849	Mus musculus	WW domain binding protein 3; WBP3	299	54
1142	gi12052738	Homo sapiens	mRNA; cDNA DKFZp564H1322 (from clone DKFZp564H1322); complete cds.	1755	96
1142	gi10434632	Homo sapiens	cDNA FLJ12886 fis, clone NT2RP2004041, weakly similar to SYNAPSINS IA AND IB.	1755	96
1142	AAB94358	Homo sapiens	Human protein sequence SEQ ID NO:14883.	1755	96
1143	AAW54370	Homo sapiens	G-protein coupled receptor HLTEX11.	1815	100
1143	AAB64854	Homo sapiens	Human secreted protein sequence encoded by gene 36 SEQ ID NO:140.	1792	100
1143	AAW70504	Homo sapiens	Leukocyte seven times membrane-	821	46

Table 2A

152

SEQ ID	Hit ID	Species	Description	S score	% Identity
			penetrating type receptor protein JEG18.		
1144	gi15278128	Mus musculus	chemokine-like factor 2 variant 2	412	49
1144	AAB51648	Homo sapiens	Human secreted protein sequence encoded by gene 29 SEQ ID NO:88.	410	100
1144	AAE03929	Homo sapiens	Human gene 32 encoded secreted protein HTLIF12, SEQ ID NO:92.	410	100
1146	gi13477335	Homo sapiens	vitamin A responsive; cytoskeleton related, clone MGC:1917 IMAGE:3510436, mRNA, complete cds.	777	95
1146	gi3746652	Homo sapiens	JWA protein mRNA, complete cds.	777	95
1146	gi6563260	Homo sapiens	jmx protein mRNA, complete cds.	777	95
1147	gi2970431	Florometra serratissima	NADH dehydrogenase subunit 4	94	31
1147	gi15042530	Chilo iridescent virus	450L	70	24
1147	AAY87197	Homo sapiens	Human secreted protein sequence SEQ ID NO:236.	90	27
1148	AAB93562	Homo sapiens	Human protein sequence SEQ ID NO:12957.	2402	100
1148	gi7023538	Homo sapiens	cDNA FLJ11091 fis, clone PLACE1005313.	860	100
1148	AAB93489	Homo sapiens	Human protein sequence SEQ ID NO:12790.	860	100
1150	gi10438431	Homo sapiens	cDNA: FLJ22155 fis, clone HRC00205.	1995	100
1150	gi10437336	Homo sapiens	cDNA: FLJ21267 fis, clone COL01717.	1776	99
1150	gi7020065	Homo sapiens	cDNA FLJ20152 fis, clone COL08515.	705	100
1151	gi12654159	Homo sapiens	interferon induced transmembrane protein 1 (9-27), clone MGC:5195 IMAGE:3464598, mRNA, complete cds.	569	93
1151	gi1177476	Homo sapiens	H.sapiens mRNA for interferon-induced 17kDa membrane protein.	569	93
1151	gi177802	Homo sapiens	Human interferon-inducible protein 9-27 mRNA, complete cds.	563	92
1152	AAG72230	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1911.	1615	100
1152	AAG72382	Homo sapiens	Human OR-like polypeptide query sequence, SEQ ID NO: 2063.	1615	100
1152	gi15293613	Homo sapiens	clone OR5C1 olfactory receptor gene, partial cds.	1097	100
1153	gi784997	Homo sapiens	H.sapiens mRNA for tumour suppressor protein, HUGL.	5025	95
1153	gi1944491	Homo sapiens	Human LLGL mRNA, complete cds.	4797	91
1153	gi854124	Homo sapiens	H.sapiens mRNA for human giant larvae homolog.	2837	58
1154	AAB95830	Homo sapiens	Human protein sequence SEQ ID NO:18850.	219	72
1154	gi7959889	Homo sapiens	PRO2221	137	49

Table 2A

153

SEQ ID	Hit ID	Species	Description	S score	% Identity
1154	gi2072969	Homo sapiens	Human L1 element L1.24 p40 gene, complete cds.	133	48
1155	gi15277644	Homo sapiens	amino acid transporter (SLC7A10) gene, exon 11 and complete cds.	2487	100
1155	gi9309293	Homo sapiens	hasc-1 mRNA for asc-type amino acid transporter 1, complete cds.	2487	100
1155	gi7415938	Mus musculus	asc1	2329	91
1156	gi6760373	Homo sapiens	ODZ3 (ODZ3) mRNA, partial cds.	2323	100
1156	gi4760780	Mus musculus	Ten-m3	2248	96
1156	gi6010049	Gallus gallus	teneurin-2 protein	878	62
1157	gi14286298	Homo sapiens	clone MGC:3593 IMAGE:2963628, mRNA, complete cds.	630	99
1157	gi4877285	Homo sapiens	mRNA for prenylated Rab acceptor 1.	630	99
1157	gi6563192	Homo sapiens	prenylated rab acceptor 1 mRNA, complete cds.	630	99
1158	gi1780976	Human endogenous retrovirus K	protease	915	58
1158	gi5802824	Homo sapiens	endogenous retrovirus HERV-K109, complete sequence.	909	59
1158	gi9558703	Homo sapiens	tandemly repeated human endogenous retrovirus HERV-K (HML-2.HOM), complete sequence.	905	59
1159	gi13111941	Homo sapiens	vesicle-associated soluble NSF attachment protein receptor (v-SNARE; homolog of S. cerevisiae VTI1), clone MGC:3767 IMAGE:2958320, mRNA, complete cds.	804	91
1159	gi3861488	Homo sapiens	vesicle soluble NSF attachment protein receptor VTI2 mRNA, complete cds.	804	91
1159	AAY73339	Homo sapiens	HTRM clone 2056042 protein sequence.	804	91
1160	gi1922891	Mus musculus	alpha 3B chain of laminin-5	10355	75
1160	gi5777581	Homo sapiens	HSapiens mRNA for laminin-5, alpha3b chain.	9398	99
1160	gi551597	Homo sapiens	laminin-related protein (LamA3) mRNA, complete cds.	8690	100
1161	AAD03056_aa1	Homo sapiens	HUMA- Human secreted protein-encoding gene 4 cDNA clone HKAAV61, SEQ ID NO:14.	1524	83
1161	AAE01167	Homo sapiens	HUMA- Human gene 4 encoded secreted protein HKAAV61, SEQ ID NO:68.	1523	82
1161	AAG67516	Homo sapiens	SMIK Amino acid sequence of a human secreted polypeptide.	1523	82
1162	AAM42034	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 6965.	900	99
1162	AAM40248	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 3393.	821	100
1162	gi491284	synthetic construct	IFN-pseudo-omega 2	800	98
1163	AAI70234_	Homo sapiens	AMGE- Human interleukin-1	819	100

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
	aa1		receptor antagonist related protein cDNA.		
1163	AAD11148_ aa1	Homo sapiens	IMMV Human FIL-1 theta full-length DNA.	819	100
1163	AAA89175_ aa1	Homo sapiens	HYSE- Human interleukin-1 Hy2 cDNA.	819	100
1164	gi340215	Homo sapiens	Human vascular endothelial growth factor gene, exon 8.	1056	97
1164	gi340301	Homo sapiens	Human vascular permeability factor mRNA, complete cds.	1056	97
1164	AAR91077	Homo sapiens	PRIZ- Human vascular endothelial growth factor-189, VEGF-189.	1056	97
1166	gi1321816	Gorilla gorilla	interleukin-8 receptor type B	602	90
1166	gi1109691	Homo sapiens	Human interleukin-8 receptor type B (IL8RB) mRNA, complete cds.	599	88
1166	gi186378	Homo sapiens	Human interleuken 8 receptor B mRNA, complete cds.	599	88
1167	gi1160967	Homo sapiens	palmitoyl-protein thioesterase gene, complete cds.	1285	100
1167	gi1314355	Homo sapiens	Human palmitoyl protein thioesterase mRNA, complete cds.	1285	100
1167	gi14250054	Homo sapiens	palmitoyl-protein thioesterase 1 (ceroid-lipofuscinosis, neuronal 1, infantile), clone MGC:14590 IMAGE:4249991, mRNA, complete cds.	1285	100
1168	gi177814	Homo sapiens	Human alpha-1-antitrypsin-related protein gene, exons 3, 4 and 5.	1956	90
1168	AAP50132	Homo sapiens	ZYMO- Seqüence of the predominant form of human alpha-1-antitrypsin(AT).	1009	72
1168	gi15990507	Homo sapiens	Similar to serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1, clone MGC:23330 IMAGE:4644658, mRNA, complete cds.	1450	69
1169	AAO12931	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 26823.	346	100
1169	AAO02697	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 16589.	143	66
1169	AAO08307	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 22199.	137	80
1170	AAR15222	Homo sapiens	TEXA Chronic myelogenous leukaemia-derived myeloid-related protein.	635	100
1170	gi181527	Homo sapiens	Human neutrophil peptide (defensin) 1 mRNA, complete cds.	493	100
1170	gi181529	Homo sapiens	Human defensin 1 protein mRNA, complete cds	493	100
1171	gi1001697	Synechocystis sp. PCC 6803	sensory transduction histidine kinase	67	37
1171	gi2353225	Acromyrmex octospinosus	cytochrome oxidase I	54	40
1171	AAG02950	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 7031.	54	32
1172	gi4884282	Homo sapiens	mRNA; cDNA DKFZp566K0524	1998	99

Table 2A

155

SEQ ID	Hit ID	Species	Description	S score	% Identity
			(from clone DKFZp566K0524); partial cds.		
1172	gi2665458	Mus musculus	protein-tyrosine-phosphatase	1363	63
1172	gi452194	Homo sapiens	Human mRNA for protein tyrosine phosphatase (PTP-BAS, type 3), complete cds.	618	48
1173	AAY48226	Homo sapiens	META- Human prostate cancer-associated protein 12.	956	96
1173	AAM25683	Homo sapiens	HYSE- Human protein sequence SEQ ID NO:1198.	956	96
1173	AAY99342	Homo sapiens	GETH Human PRO1018 (UNQ501) amino acid sequence SEQ ID NO:8.	950	94
1174	gi178018	Homo sapiens	Human activation (Act-2) mRNA, complete cds.	125	84
1174	gi34218	Homo sapiens	Human LAG-1 mRNA.	125	84
1174	gi533213	Homo sapiens	secreted T cell protein (H400; SIS-gamma) mRNA, complete cds.	125	84
1175	gi178018	Homo sapiens	Human activation (Act-2) mRNA, complete cds.	123	92
1175	gi34218	Homo sapiens	Human LAG-1 mRNA.	123	92
1175	gi533213	Homo sapiens	secreted T cell protein (H400; SIS-gamma) mRNA, complete cds.	123	92
1176	AAG03315	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 7396.	314	100
1176	gi965069	Serratia marcescens	phage-holin analog protein	71	40
1176	gi16415877	Octopus salutii	cytochrome oxidase subunit III	74	28
1177	gi178836	Homo sapiens	APOC2 gene, complete sequence; and apolipoprotein C-II (APOC2) gene, complete cds.	453	89
1177	gi296636	Homo sapiens	Human apoC-II gene for preproapolipoprotein C-II.	453	89
1177	gi757915	Homo sapiens	Human mRNA for lipoprotein apoCII.	453	89
1178	AAO07986	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 21878.	77	34
1179	AAB60502	Homo sapiens	INCY- Human cell cycle and proliferation protein CCYPR-50, SEQ ID NO:50.	1205	100
1179	AAB12144	Homo sapiens	PROT- Hydrophobic domain protein isolated from WERI-RB cells.	1205	100
1179	AAG81333	Homo sapiens	ZYMO Human AFP protein sequence SEQ ID NO:184.	687	99
1180	AAW67880	Homo sapiens	HUMA- Human secreted protein encoded by gene 74 clone HNTAC73.	378	97
1180	gi9949887	Pseudomonas aeruginosa	probable transcriptional regulator	65	41
1180	gi3130050	Schizosaccharomyces pombe	haloacid dehalogenase-like hydrolase	62	32
1181	AAG01183	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 5264.	278	94
1181	AAO00621	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 14513.	84	47

Table 2A

156

SEQ ID	Hit ID	Species	Description	S score	% Identity
1181	AAO02188	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 16080.	78	40
1182	ABB12063	Homo sapiens	HYSE- Human secreted protein homologue, SEQ ID NO:2433.	326	100
1182	AAE06730	Homo sapiens	SMIK Human CASB765 protein.	200	100
1182	AAW75098	Homo sapiens	HUMA- Human secreted protein encoded by gene 42 clone HSXBI25.	143	81
1183	gi13278924	Homo sapiens	neural proliferation, differentiation and control, 1, clone MGC:4597 IMAGE:3347743, mRNA, complete cds.	748	98
1183	gi8515886	Homo sapiens	NPDC1-like protein (NPDC1) mRNA, complete cds.	748	98
1183	AAB43904	Homo sapiens	HUMA- Human cancer associated protein sequence SEQ ID NO:1349.	748	98
1184	gi13128925	Homo sapiens	ULBP2 protein mRNA, complete cds.	1025	90
1184	gi14530663	Homo sapiens	mRNA for ALCAN-alpha, complete cds.	1025	90
1184	AAY15238	Homo sapiens	IMMV ULBP-2 amino acid sequence.	1025	90
1185	gi4164134	Homo sapiens	cosmid clone U169D2 from Xp22.1-22.2, complete sequence.	76	36
1185	AAU22866	Homo sapiens	HUMA- Human prostate cancer antigen, Seq ID No 385.	60	35
1185	AAM96178	Homo sapiens	HUMA- Human reproductive system related antigen SEQ ID NO: 4836.	60	35
1186	gi7770223	Homo sapiens	PRO2714	282	84
1186	ABB15615	Homo sapiens	HUMA- Human nervous system related polypeptide SEQ ID NO 4272.	63	48
1186	AAO07531	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 21423.	67	46
1187	AAE05962	Homo sapiens	HYSE- Human phospholipase-related protein.	2521	99
1187	gi3811347	Homo sapiens	cytosolic phospholipase A2 beta (cPLA2 beta) mRNA, complete cds.	1209	44
1187	gi4886978	Homo sapiens	cytosolic phospholipase A2 beta mRNA, complete cds.	1209	44
1188	AAO01938	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 15830.	93	36
1188	gi2992470	Mus sp.	mitochondrial capsule selenoprotein; MCS	95	31
1188	gi14717800	Mus musculus	seleno-protein	95	31
1189	gi186600	Homo sapiens	Human inter-alpha-trypsin inhibitor light chain (ITI) gene, exons 7-10.	1461	93
1189	gi24479	Homo sapiens	Human mRNA for alpha-1-microglobulin and HI-30.	1461	93
1189	gi32047	Homo sapiens	Human mRNA for protein HC (alpha-1-microglobulin).	1461	93
1190	gi673422	Homo sapiens	H.sapiens mRNA fragment for T-cell receptor alpha chain.	1322	93

Table 2A

157

SEQ ID	Hit ID	Species	Description	S score	% Identity
1190	AAU69943	Homo sapiens	CORI- Human T cell receptor Va chain of clone 4E5 for prostate protein P501S.	1097	77
1190	AAM01298	Homo sapiens	CORI- P501S-specific T cell clone 4E5 Va chain T cell receptor amino acid.	1097	77
1191	gi673422	Homo sapiens	H.sapiens mRNA fragment for T-cell receptor alpha chain.	859	95
1191	gi623119	Macaca mulatta	T-cell receptor alpha	605	86
1191	AAU69943	Homo sapiens	CORI- Human T cell receptor Va chain of clone 4E5 for prostate protein P501S.	594	65
1192	gi13097588	Homo sapiens	clone MGC:10745 IMAGE:2820343, mRNA, complete cds.	201	100
1192	gi53861	Mus musculus	Q300 protein (AA 1-77)	72	38
1192	AAO02105	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 15997.	50	56
1193	AAB08894	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 4 SEQ ID NO:51.	208	57
1193	gi15088679	Homo sapiens	cysteine and tyrosine-rich protein 1 (CYYR1) mRNA, complete cds.	59	28
1193	AAY87233	Homo sapiens	INCY- Human signal peptide containing protein HSPP-10 SEQ ID NO:10.	59	28
1194	AAG03963	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 8044.	417	80
1194	ABB10168	Homo sapiens	HUMA- Human cDNA SEQ ID NO: 476.	289	100
1194	ABB10412	Homo sapiens	HUMA- Human cDNA SEQ ID NO: 720.	289	100
1195	gi9758052	Arabidopsis thaliana		64	46
1195	gi6815537	Human immunodeficiency virus type 1	gag protein	47	62
1195	gi14269033	Sus scrofa	interferon beta-1	42	47
1196	gi7582276	Homo sapiens	BM-002	328	100
1196	AAM78626	Homo sapiens	HYSE- Human protein SEQ ID NO 1288.	328	100
1196	AAM79610	Homo sapiens	HYSE- Human protein SEQ ID NO 3256.	328	100
1197	gi1181885	Mus musculus	patched	209	62
1197	AAV21590_aa1	Homo sapiens	STRD Human patched (ptc) protein encoding cDNA.	215	63
1197	gi1335864	Homo sapiens	Human patched homolog (PTC) mRNA, complete cds.	214	63
1198	AAB25674	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 10 SEQ ID NO:63.	646	84
1198	gi14603247	Homo sapiens	Similar to RIKEN cDNA 5730409G15 gene, clone MGC:19636 IMAGE:2822323, mRNA, complete cds.	420	94
1198	AAB36613	Homo sapiens	INCY- Human FLEXHT-35 protein sequence SEQ ID NO:35.	420	94

Table 2A

158

SEQ ID	Hit ID	Species	Description	S score	% Identity
1200	AAU12292	Homo sapiens	GBTH Human PRO6027 polypeptide sequence.	990	98
1200	AAU27673	Homo sapiens	ZYMO Human protein AFP235412.	987	99
1200	gi13477121	Homo sapiens	clone IMAGE:3636082, mRNA, partial cds.	291	95
1201	AAB43928	Homo sapiens	HUMA- Human cancer associated protein sequence SEQ ID NO:1373.	216	58
1201	gi13325337	Homo sapiens	clone MGC:10520 IMAGE:3938462, mRNA, complete cds.	219	48
1201	AAB21040	Homo sapiens	INCY- Human nucleic acid-binding protein, NuABP-44.	219	48
1202	AAB43928	Homo sapiens	HUMA- Human cancer associated protein sequence SEQ ID NO:1373.	223	55
1202	gi16550327	Homo sapiens	cDNA FLJ31005 fis, clone HLUNG2000068, weakly similar to ZINC FINGER PROTEIN 157.	215	67
1202	gi16552980	Homo sapiens	cDNA FLJ32768 fis, clone TESTI2001879, weakly similar to ZINC FINGER PROTEIN 157.	215	67
1203	gi4322936	Homo sapiens	HPK/GCK-like kinase HGK mRNA, complete cds.	120	85
1203	gi4262362	Caenorhabditis elegans	alternatively spliced serine/threonine protein kinase MIG-15	119	81
1203	AAB50058	Homo sapiens	IMMV SS-4694.	117	81
1204	gi1754714	Xenopus laevis	oviductin	378	40
1204	gi15277254	Bufo japonicus	oviductin	351	36
1204	gi2981641	Xenopus laevis	polyprotein	339	46
1205	gi15214578	Homo sapiens	clone MGC:9135 IMAGE:3865141, mRNA, complete cds.	451	76
1205	AAW67901	Homo sapiens	HUMA- Human secreted protein encoded by gene 36 clone HODCL36.	451	76
1205	gi1946205	Homo sapiens	H.sapiens mRNA for CHD5 protein.	445	75
1206	AAG01971	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 6052.	314	100
1206	gi4200340	Lycopersicon esculentum	P69D protein	83	43
1206	gi3183989	Lycopersicon esculentum	P69E protein	82	43
1207	gi14043211	Homo sapiens	Similar to RIKEN cDNA 4931428F04 gene, clone IMAGE:3346497, mRNA, partial cds.	878	83
1207	gi9711595	Xanthomonas oryzae pv. oryzae	HpaA	71	24
1207	AAO10768	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 24660.	72	34
1208	AAY91512	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 62 SEQ	606	100

Table 2A

159

SEQ ID	Hit ID	Species	Description	S score	% Identity
			ID NO:185.		
1208	AAY91653	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 62 SEQ ID NO:326.	606	100
1208	AAY71277	Homo sapiens	ZYMO Human Zlipo3 protein.	606	100
1209	AAY27648	Homo sapiens	HUMA- Human secreted protein encoded by gene No. 82.	322	98
1209	gi7959897	Homo sapiens	PRO2379	72	39
1209	AAO03791	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 17683.	61	68
1210	gi17431247	Ralstonia solanacearum	HYPOTHETICAL PROTEIN	70	38
1211	AAB08765	Homo sapiens	INCY- A human leukocyte and blood related protein (LBAP).	339	62
1211	AAB74718	Homo sapiens	INCY- Human membrane associated protein MEMAP-24.	314	66
1211	gi2587024	Homo sapiens	mRNA containing human endogenous retrovirus H and human endogenous retrovirus E sequences.	259	67
1212	gi10440139	Homo sapiens	cDNA: FLJ23447 fis, clone HSI03346.	1339	95
1212	AAY13396	Homo sapiens	GETH Amino acid sequence of protein PRO332.	872	48
1212	AAB33425	Homo sapiens	GETH Human PRO332 protein UNQ293 SEQ ID NO:57.	872	48
1213	AAG66547	Homo sapiens	HYSE- Human secreted metallocarboxypeptidase-like polypeptide.	1551	99
1213	AAG66565	Homo sapiens	HYSE- Human secreted metallocarboxypeptidase-like variant polypeptide.	1548	98
1213	AAB74682	Homo sapiens	INCY- Human protease and protease inhibitor PPIM-15.	1482	98
1214	gi15528833	Homo sapiens	Fc receptor-like protein 2 (FCRH2) mRNA, complete cds.	528	100
1214	AAB85464	Homo sapiens	HYSE- Human immunoglobulin domain-containing polypeptide.	528	100
1214	AAB82317	Homo sapiens	UYCO Human immunoglobulin receptor IRTA4 protein.	528	100
1215	AAU27663	Homo sapiens	ZYMO Human protein AFP285042.	555	100
1215	AAE06599	Homo sapiens	SAGA Human protein having hydrophobic domain, HP10782.	510	100
1215	gi15558917	Magnaporthe grisea	similarity to Lec35 protein	169	30
1216	gi10439008	Homo sapiens	cDNA: FLJ22573 fis, clone HSI02387.	682	99
1216	AAM87876	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:15469.	169	70
1216	gi1616747	Tupaia glis belangeri	GnRH preprohormone second form	68	33
1217	gi10439008	Homo sapiens	cDNA: FLJ22573 fis, clone HSI02387.	529	92
1217	AAM87876	Homo sapiens	HUMA- Human	109	71

Table 2A

160

SEQ ID	Hit ID	Species	Description	S score	% Identity
			immune/haematopoietic antigen SEQ ID NO:15469.		
1217	AAM87620	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:15213.	70	35
1218	AAM60951	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 33056.	58	36
1218	AAM73644	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 33950.	58	36
1218	AAO00109	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 14001.	58	45
1219	gi16950537	Hop mosaic virus	cysteine-rich nucleic acid binding protein	41	47
1219	AAY19474	Homo sapiens	HUMA- Amino acid sequence of a human secreted protein.	43	43
1219	AAO03071	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 16963.	45	31
1220	gi1171589	Plasmodium falciparum	frameshift	76	37
1220	gi4512010	Escherichia coli	OrfY	66	50
1220	gi1870470	Mus musculus	anti-DNA immunoglobulin light chain IgG	46	37
1221	gi13274524	Homo sapiens	complement-c1q tumor necrosis factor-related protein (CTRP7) mRNA, complete cds.	1451	94
1221	AAB50371	Homo sapiens	ZYMO Human ZACRP7.	1451	94
1221	gi13274518	Homo sapiens	complement-c1q tumor necrosis factor-related protein (CTRP2) mRNA, complete cds.	831	61
1222	AAO03899	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 17791.	67	50
1222	AAG73465	Homo sapiens	HUMA- Human gene 12-encoded secreted protein fragment, SEQ ID NO:240.	75	31
1222	AAM85406	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:12999.	60	40
1223	gi8850245	Homo sapiens	activated p21cdc42Hs kinase (ACK1) mRNA, complete cds.	5605	100
1223	gi2921447	Mus musculus	non-receptor protein tyrosine kinase Ack	4238	79
1223	gi2078388	Bos taurus	Cdc42-associated tyrosine kinase ACK-2	3493	90
1224	AAB84696	Homo sapiens	ZYMO Amino acid sequence of a human zkun10 polypeptide.	358	35
1224	gi211622	Gallus gallus	alpha-3 collagen type VI	308	33
1224	AAM42089	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 7020.	276	32
1225	AAB66065	Homo sapiens	MILL- Human TANGO 294.	2113	99
1225	AAB66067	Homo sapiens	MILL- Human TANGO 294 mature protein.	2015	99
1225	gi434306	Homo sapiens	H.sapiens mRNA for lysosomal acid lipase.	1290	60
1226	AAM06483	Homo sapiens	HYSE- Human foetal protein, SEQ	282	98

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			ID NO: 214.		
1226	gi3694984	Pimpinella brachycarpa	metallothionein-1-like protein	57	30
1226	AAU22415	Homo sapiens	HUMA- Human cardiovascular system antigen polypeptide SEQ ID No 1189.	56	27
1227	gi15029634	Homo sapiens	Similar to tetranectin (plasminogen-binding protein), clone MGC:13592 IMAGE:4042921, mRNA, complete cds.	725	100
1227	gi37409	Homo sapiens	H.sapiens mRNA for tetranectin.	725	100
1227	gi825722	Homo sapiens	H.sapiens tetranectin gene, exon 1.	725	100
1228	gi5790207	Taenia saginata	ATPase subunit 6	70	32
1228	gi3927873	Cyanidioschyzon merolae	NADH-ubiquinone oxidoreductase chain 3	44	19
1228	gi4378776	Pedinomonas minor	NADH dehydrogenase subunit 3	47	30
1229	AAE01790	Homo sapiens	HUMA- Human gene 21 encoded secreted protein HDPTW65, SEQ ID NO:111.	142	59
1229	AAE01838	Homo sapiens	HUMA- Human gene 21 encoded secreted protein HDPTW65, SEQ ID NO:159.	140	57
1229	ABB11479	Homo sapiens	HYSE- Human reverse transcriptase homologue, SEQ ID NO:1849.	92	55
1230	AAE04775	Homo sapiens	INCY- Human vesicle trafficking protein-18 (VETRP-18) protein.	327	100
1230	gi11120502	Homo sapiens	ERGL mRNA, complete cds.	327	100
1230	AAW88699	Homo sapiens	HUMA- Secreted protein encoded by gene 166 clone HCEQA68.	333	100
1231	AAG00381	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 4462.	266	91
1231	AAU19357	Homo sapiens	PHAA Human G protein-coupled receptor nGPCR-2290.	125	50
1231	AAO09238	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 23130.	109	75
1232	AAM06558	Homo sapiens	HYSE- Human foetal protein, SEQ ID NO: 289.	301	98
1232	gi2648055	Xenopus laevis	corticotropin releasing factor receptor, type 2	48	29
1232	AAU21458	Homo sapiens	HUMA- Human novel foetal antigen, SEQ ID NO 1702.	45	36
1233	AAM06562	Homo sapiens	HYSE- Human foetal protein, SEQ ID NO: 293.	383	100
1233	AAG72602	Homo sapiens	YEDA Human OR-like polypeptide query sequence, SEQ ID NO: 2283.	65	42
1233	gi7547265	Canis familiaris	5-Hydroxytryptamine 1D receptor subtype beta; 5-HT1D beta	67	39
1234	AAM92283	Homo sapiens	HUMA- Human digestive system antigen SEQ ID NO: 1632.	76	36
1234	AAO09955	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 23847.	70	35
1234	gi8778849	Arabidopsis	T7N9.1	69	42

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
		thaliana			
1235	AAM63797	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 35902.	48	34
1235	AAM76610	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 36916.	48	34
1235	ABB12222	Homo sapiens	HYSE- Human secreted protein homologue, SEQ ID NO:2592.	52	42
1236	gi160822	Sarcocystis muris	31-kDa major surface antigen	55	37
1236	gi5305067	Mus musculus	immunoglobulin light chain variable region	61	34
1236	AAM60441	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 32546.	61	40
1237	gi4929790	Homo sapiens	angiopoietin-related protein 3 (ANGPTL3) mRNA, complete cds.	1489	98
1237	AAY05395	Homo sapiens	GETH Human TIE ligand NL6 protein sequence.	1489	98
1237	AAB12135	Homo sapiens	PROT- Hydrophobic domain protein from clone HP10622 isolated from Liver cells.	1489	98
1238	AAM06568	Homo sapiens	HYSE- Human foetal protein, SEQ ID NO: 299.	142	57
1238	gi1334599	Magnaporthe grisea	ubiquinol:cytochrome c oxireductase	48	42
1238	gi13487283	Mycosphaerella fijiensis	cytochrome b	46	42
1239	gi15930235	Homo sapiens	clone IMAGE:3846772, mRNA, partial cds.	46	40
1239	gi1334235	Rattus rattus	MIP protein (261 AA; AA 3 - 263)	65	45
1239	gi1185419	Mus musculus	major intrinsic protein	65	45
1240	AAM60668	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 32773.	62	31
1240	AAM73340	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 33646.	62	31
1240	gi975678	Albinaria caerulea	start codon=CAT, termination codon=TAA	65	27
1241	AAG03454	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 7535.	40	26
1241	gi1245208	Danio rerio	Zgl3	57	47
1241	AAY19486	Homo sapiens	HUMA- Amino acid sequence of a human secreted protein.	33	41
1242	gi3157920	Arabidopsis thaliana	F12F1.6	46	37
1242	AAY48414	Homo sapiens	META- Human prostate cancer-associated protein 111.	36	46
1242	gi927722	Saccharomyces cerevisiae	Erd1p; YDR414C; CAI: 0.11	61	44
1243	gi9657469	Vibrio cholerae	soxR protein	39	46
1243	gi3493510	Mus musculus	Ymp	47	43
1243	gi2358254	Mus musculus	HNMP-1	47	43

Table 2A

163

SEQ ID	Hit ID	Species	Description	S score	% Identity
1244	AAO12129	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 26021.	64	90
1244	gi3874749	Caenorhabditis elegans	C34E7.3	50	56
1244	AAO12895	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 26787.	64	44
1245	AAY99386	Homo sapiens	GETH Human PRO1305 (UNQ671) amino acid sequence SEQ ID NO:153.	71	39
1245	AAO02040	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 15932.	63	33
1245	gi15073483	Sinorhizobium meliloti	PUTATIVE SENSORY TRANSDUCTION HISTIDINE KINASE TRANSMEMBRANE PROTEIN	77	39
1246	AAG75420	Homo sapiens	HUMA- Human colon cancer antigen protein SEQ ID NO:6184.	49	40
1246	gi4099021	Helicobacter pylori	amino acid permease	47	39
1246	gi2314328	Helicobacter pylori 26695	glutamine ABC transporter, permease protein (glnP)	47	39
1248	gi2959352	Brugia pahangi	cuticle collagen 2(F)	68	37
1248	AAO03627	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 17519.	59	40
1248	gi13959819	Myxococcus xanthus	USC6-1p	67	43
1249	gi8249629	Homo sapiens	partial IGHV gene for immunoglobulin heavy chain variable region, clone B31.	62	44
1249	gi6646882	Paragonimus westermani	NADH dehydrogenase subunit 1	63	40
1249	AAR39641	Homo sapiens	CIBA Transforming Growth Factor-beta1(44/45)beta2 hybrid.	44	37
1250	AAU04613	Homo sapiens	UNIW Gonadotropin analogue, beta subunit.	40	58
1250	gi3242155	Drosophila melanogaster	153C9.b	60	43
1250	AAM63639	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 35744.	59	42
1251	AAO11677	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 25569.	74	54
1251	gi7716782	Drosophila simulans	helicase pitchoune	77	44
1251	gi3342758	Drosophila melanogaster	helicase pitchoune	77	44
1252	gi482846	Torgos tracheliotus	cytochrome b	51	40
1252	gi22737	Hordeum vulgare	beta-hordothionin	42	38
1252	AAM79945	Homo sapiens	HYSE- Human protein SEQ ID NO 3591.	45	40
1253	gi424891	Human immunodeficiency virus type 1	envelope glycoprotein	37	33
1253	gi9654985	Vibrio cholerae	glutamate--cysteine ligase	62	28

Table 2A

164

SEQ ID	Hit ID	Species	Description	S score	% Identity
1254	gi3805960	Populus balsamifera subsp. trichocarpa	laccase	47	72
1254	gi15074016	Sinorhizobium meliloti	PUTATIVE TRANSCRIPTION REGULATOR PROTEIN	57	35
1254	gi12652993	Homo sapiens	clone IMAGE:3357862, mRNA, partial cds.	56	47
1255	gi1655739	Peromyscus maniculatus	NADH dehydrogenase subunit 4	44	24
1255	gi16551105	Crotalus adamanteus	NADH dehydrogenase subunit 5	66	28
1255	gi16551107	Crotalus atrox	NADH dehydrogenase subunit 5	65	28
1256	AAO06799	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 20691.	43	37
1256	AAO00659	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 14551.	41	52
1256	AAB51937	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 9 SEQ ID NO:69.	37	60
1257	gi6449037	Mus musculus	platelet glycoprotein V	738	38
1257	gi2104856	Rattus norvegicus	platelet glycoprotein V	735	37
1257	gi2104845	Mus musculus	platelet glycoprotein V	722	37
1258	AAO11326	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 25218.	61	40
1258	gi7576909	Danio rerio	her7-protein	64	37
1258	AAG81428	Homo sapiens	ZYMO Human AFP protein sequence SEQ ID NO:374.	47	38
1259	gi18349	Daucus carota	glycine rich protein (AA 1 - 96)	65	45
1259	gi336034	Vesicular stomatitis virus	M-protein	70	26
1259	gi335876	Vesicular stomatitis virus	matrix (M) protein	70	26
1260	AAO09307	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 23199.	41	37
1260	gi15042581	Echinococcus granulosus	NADH dehydrogenase subunit 2	59	41
1261	gi10436454	Homo sapiens	cDNA FLJ14082 fis, clone HEMBB1002300.	983	99
1261	AAB95686	Homo sapiens	HELI- Human protein sequence SEQ ID NO:18490.	983	99
1261	AAY20668	Homo sapiens	UYRO- Human neurofilament-M wild type protein fragment 10.	44	50
1263	gi965014	Mus musculus	ADAM 4 protein precursor	1303	51
1263	gi1061159	Macaca fascicularis	testicular Metalloprotease-like, Disintegrin-like, Cysteine-rich protein IVa	1277	39
1263	gi1061161	Macaca fascicularis	testicular Metalloprotease-like, Disintegrin-like, Cysteine-rich protein IVb	1249	38
1264	AAM79049	Homo sapiens	HYSE- Human protein SEQ ID NO 1711.	1895	98
1264	AAM80033	Homo sapiens	HYSE- Human protein SEQ ID NO 3679.	1895	98
1264	AAM53458	Homo sapiens	MOLE- Human brain expressed	1074	100

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			single exon probe encoded protein SEQ ID NO: 25563.		
1265	AAB44605	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 10 SEQ ID NO:70.	93	70
1265	AAG71789	Homo sapiens	YEDA Human olfactory receptor polypeptide, SEQ ID NO: 1470.	42	63
1265	AAG72517	Homo sapiens	YEDA Human OR-like polypeptide query sequence, SEQ ID NO: 2198.	42	63
1266	gi14714741	Homo sapiens	clusterin (complement lysis inhibitor, SP-40,40, sulfated glycoprotein 2, testosterone-repressed prostate message 2, apolipoprotein J), clone MGC:18080 IMAGE:4150452, mRNA, complete cds.	1629	99
1266	gi292843	Homo sapiens	Human TRPM-2 protein gene, exons 7,8,9 and complete cds.	1629	99
1266	gi30251	Homo sapiens	Human SP-40,40 mRNA for complement-associated protein SP-40,40 alpha-1 and beta-1 chain.	1629	99
1267	gi11493504	Homo sapiens	PRO0309	1192	98
1267	gi412723	synthetic construct	synthetic antithrombin III	1192	98
1267	gi583741	synthetic construct	Antithrombin III	1192	98
1268	gi11493504	Homo sapiens	PRO0309	1439	98
1268	gi412723	synthetic construct	synthetic antithrombin III	1439	98
1268	gi583741	synthetic construct	Antithrombin III	1439	98
1269	gi203710	Rattus norvegicus	cytochrome c oxidase subunit VIc	250	65
1269	gi1200057	Homo sapiens	Human mRNA for cytochrome c oxidase subunit VIc.	229	61
1269	gi12652867	Homo sapiens	cytochrome c oxidase subunit VIc, clone MGC:1520 IMAGE:3350637, mRNA, complete cds.	229	61
1270	AAM96033	Homo sapiens	HUMA- Human reproductive system related antigen SEQ ID NO: 4691.	465	98
1270	AAU18881	Homo sapiens	HUMA- Novel prostate gland antigen, Seq ID No 180.	465	98
1270	gi9622236	Homo sapiens	cadherin-like protein VR20 mRNA, partial cds.	272	100
1271	gi552137	Drosophila melanogaster	tropomyosin isoform 9E	118	27
1271	gi158693	Drosophila melanogaster	tropomyosin isoform 9A	118	27
1271	gi158696	Drosophila melanogaster	tropomyosin isoform 9D	118	27
1272	gi6689249	Streptococcus dysgalactiae subsp. dysgalactiae	M-like protein	122	24

Table 2A

166

SEQ ID	Hit ID	Species	Description	S score	% Identity
1272	gi6692690	Arabidopsis thaliana	F12K11.14	114	28
1272	gi4778	Saccharomyces cerevisiae	Uso1 protein	122	29
1273	gi13097573	Homo sapiens	Similar to thiosulfate sulfurtransferase (rhodanese), clone MGC:10492 IMAGE:3611253, mRNA, complete cds.	1469	94
1273	gi16876913	Homo sapiens	mercaptopyruvate sulfurtransferase, clone MGC:24539 IMAGE:4105509, mRNA, complete cds.	1469	94
1273	gi17511726	Homo sapiens	mercaptopyruvate sulfurtransferase, clone MGC:31798 IMAGE:4131927, mRNA, complete cds.	1469	94
1274	AAB85039	Homo sapiens	CURA- Human SER5 protein sequence.	767	48
1274	gi6137097	Homo sapiens.	serine protease DESC1 (DESC1) mRNA, complete cds.	749	48
1274	AAY99414	Homo sapiens	GETH Human PRO1461 (UNQ742) amino acid sequence SEQ ID NO:269.	749	48
1275	gi12584839	Homo sapiens	HT036-ISO (HT036-ISO) mRNA, complete cds.	997	94
1275	gi12584841	Homo sapiens	HT036 (HT036) mRNA, complete cds.	820	93
1275	gi17427028	Ralstonia solanacearum	CONSERVED HYPOTHETICAL PROTEIN	502	42
1276	gi310691	Simian virus 40	small T antigen	48	47
1276	gi8886685	Centris inermis	cytochrome b	53	40
1276	gi625084	Oncorhynchus tshawytscha	heat-shock protein 30	37	44
1277	gi7106820	Homo sapiens	HSPC215	261	100
1277	AAU16225	Homo sapiens	HUMA- Human novel secreted protein, Seq ID 1178.	261	100
1277	AAG81441	Homo sapiens	ZYMO Human AFP protein sequence SEQ ID NO:400.	261	100
1278	AAM25840	Homo sapiens	HYSE- Human protein sequence SEQ ID NO:1355.	208	88
1278	AAM74914	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 35220.	63	68
1278	AAM06639	Homo sapiens	HYSE- Human foetal protein, SEQ ID NO: 370.	36	70
1279	gi7023943	Homo sapiens	GC36 mRNA, complete cds.	360	35
1279	gi2502077	Homo sapiens	digestive tract-specific calpain (nCL-4) mRNA, complete cds.	360	35
1279	gi2358262	Rattus norvegicus	calpain large subunit	351	35
1280	gi4153951	Homo sapiens	H.sapiens gene from PACs 295C6 and 313L4.	259	37
1280	AAY32437	Homo sapiens	TEXA Absorptive hypercalciuria associated gene protein prodict.	259	37
1280	gi15383934	Homo sapiens	testicular soluble adenylyl cyclase mRNA, complete cds.	259	37

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
1281	AAM89651	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:17244.	66	31
1281	gi408591	Influenza A virus	nonstructural protein	62	28
1281	AAM82524	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:10117.	62	55
1282	gi4079820	Mus musculus	HERC2	67	40
1282	gi459017	Allomyces macrogynus	subunit 6 of the ATPase complex	71	44
1282	gi1236414	Allomyces macrogynus	H(+)-transporting ATPase, F0 subunit 6	71	44
1283	AAM63001	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 35106.	153	67
1283	AAM75812	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 36118.	153	67
1283	AAE10197	Homo sapiens	HYSE- Human bone marrow derived peptide, SEQ ID NO: 41.	60	36
1284	AAG81367	Homo sapiens	ZYMO Human AFP protein sequence SEQ ID NO:252.	816	98
1284	gi7582286	Homo sapiens	BM-007	530	98
1284	AAG02907	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 6988.	408	95
1285	AAG81367	Homo sapiens	ZYMO Human AFP protein sequence SEQ ID NO:252.	906	98
1285	gi7582286	Homo sapiens	BM-007	538	99
1285	AAG02907	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 6988.	416	96
1286	AAW49716	Homo sapiens	PROT- Protein polymer adhesive substrate PPAS1-C monomer.	54	31
1286	AAW49721	Homo sapiens	PROT- Protein polymer adhesive substrate PPAS1-D monomer.	54	31
1286	gi683735	Macaca fascicularis	endothelin 3	50	62
1287	gi5689766	Homo sapiens	mRNA for zinc finger 2 (ZNF2 gene).	2092	99
1287	gi14602980	Homo sapiens	clone MGC:16594 IMAGE:4110322, mRNA, complete cds.	1609	100
1287	gi13477207	Homo sapiens	clone MGC:12980 IMAGE:3350363, mRNA, complete cds.	1604	99
1288	AAB44228	Homo sapiens	HUMA- Human cancer associated protein sequence SEQ ID NO:1673.	284	86
1288	AAM90208	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:17801.	43	50
1288	gi733438	Cepaea nemoralis	NADH dehydrogenase subunit 4L	62	31
1289	gi10764264	synthetic construct	mutated NS5A	67	30
1289	AAO02625	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 16517.	58	26

Table 2A

168

SEQ ID	Hit ID	Species	Description	S score	% Identity
1289	gi10644188	Hepatitis C virus type 1a	polyprotein	67	30
1290	AAG03150	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 7231.	307	98
1290	AAW48931	Homo sapiens	CEDA- Schwannomin-binding protein C-terminal fragment.	286	100
1290	AAO04324	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 18216.	63	33
1291	AAB60098	Homo sapiens	INCY- Human transport protein TPPT-18.	1822	92
1291	gi1537070	Rattus norvegicus	nucleoporin p54	1767	92
1291	gi15214835	Homo sapiens	clone MGC:13407 IMAGE:3931652, mRNA, complete cds.	1822	92
1292	AAY94621	Homo sapiens	MILL- Epidermal growth factor-like variant in skin-2 amino acid sequence.	385	100
1292	AAE06697	Homo sapiens	HYSE- Human TGF alpha-like protein.	385	100
1292	AAE06698	Homo sapiens	HYSE- Human TGF alpha-like splice variant protein.	385	100
1293	AAW78245	Homo sapiens	HUMA- Fragment of human secreted protein encoded by gene 19.	1018	98
1293	ABB11835	Homo sapiens	HYSE- Human secreted protein homologue, SEQ ID NO:2205.	1018	98
1293	AAM79352	Homo sapiens	HYSE- Human protein SEQ ID NO 2998.	1018	98
1294	AAM99920	Homo sapiens	HUMA- Human polypeptide SEQ ID NO 36.	667	97
1294	gi16552010	Homo sapiens	cDNA FLJ32009 fis, clone NT2RP7009498, weakly similar to FIBULIN-1, ISOFORM A PRECURSOR.	667	97
1294	AAM99933	Homo sapiens	HUMA- Human polypeptide SEQ ID NO 49.	627	93
1295	gi2598167	Homo sapiens	zinc finger protein (HZF6) mRNA, 5' UTR and partial cds.	2772	99
1295	gi5640019	Mus musculus	zinc finger protein ZFP235	1565	68
1295	gi1184371	Mus musculus	zinc finger protein; Method: conceptual translation supplied by author	1278	55
1296	gi15679947	Homo sapiens	endothelial zinc finger protein induced by tumor necrosis factor alpha, clone MGC:11153 IMAGE:3840512, mRNA, complete cds.	2734	100
1296	gi9502202	Homo sapiens	endothelial zinc finger protein induced by tumor necrosis factor alpha (EZFIT) mRNA, complete cds.	2734	100
1296	gi10437767	Homo sapiens	cDNA: FLJ21628 fis, clone COL08076.	1713	77
1297	AAM56742	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 28847.	99	55

Table 2A
169

SEQ ID	Hit ID	Species	Description	S score	% Identity
1297	AAO09197	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 23089.	66	45
1297	gi12543402	Corynebacterium glutamicum	FRXA00675	79	26
1298	AAM79176	Homo sapiens	HYSE- Human protein SEQ ID NO 1838.	601	100
1298	ABB11626	Homo sapiens	HYSE- Human Fas-associated phosphatase homologue, SEQ ID NO:1996.	559	94
1298	AAM80160	Homo sapiens	HYSE- Human protein SEQ ID NO 3806.	559	94
1299	gi12698338	Homo sapiens	matrix metalloproteinase-28 precursor, mRNA, complete cds.	2424	96
1299	gi12698852	Homo sapiens	matrix metalloprotease MMP25 mRNA, complete cds.	2424	96
1299	AAU12243	Homo sapiens	GETH Human PRO4339 polypeptide sequence.	2424	96
1300	gi14210477	Homo sapiens	interleukin 18 precursor, mRNA, complete cds.	138	92
1300	AAW31757	Homo sapiens	INCY- Interferon gamma inducing factor-2 (IGIF-2) R140I variant.	138	92
1300	gi10799833	Ovis aries	interleukin-18 (IGIF)	122	78
1301	AAE05302	Homo sapiens	MILL- Human TANGO 457 protein.	623	97
1301	AAE05303	Homo sapiens	MILL- Human mature TANGO 457 protein.	611	100
1301	AAE05305	Homo sapiens	MILL- Human TANGO 457 protein cytoplasmic domain.	605	100
1302	AAM55396	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 27501.	64	38
1302	AAM57742	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 29847.	64	38
1302	AAM67792	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 28098.	64	38
1303	AAM88370	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:15963.	38	35
1303	gi7330034	Macaca mulatta rhadinovirus 26-95	helicase-primase	56	30
1303	gi4494949	Macaca mulatta rhadinovirus 17577	helicase/primase	56	30
1304	gi190870	Homo sapiens	Human retinoic acid receptor gamma 2 mRNA, 5' end.	274	100
1304	gi297146	Homo sapiens	H.sapiens gene for retinoic acid receptor gamma-2.	274	100
1304	gi200660	Mus musculus	retinoic acid receptor gamma 2	252	92
1305	AAM39737	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 2882.	992	99
1305	AAM39736	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 2881.	875	100
1305	AAM41522	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 6453.	875	100

Table 2A

170

SEQ ID	Hit ID	Species	Description	S score	% Identity
1306	ABB17891	Homo sapiens	HUMA- Human nervous system related polypeptide SEQ ID NO 6548.	54	38
1306	AAM88996	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:16589.	57	40
1306	AAM65093	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 37198.	55	50
1307	AAY19551	Homo sapiens	HUMA- Amino acid sequence of a human secreted protein.	133	42
1307	AAY75972	Homo sapiens	GENE- Human skin cell protein, SEQ ID 150.	133	42
1307	AAB55911	Homo sapiens	GENE- Skin cell protein, SEQ ID NO: 150.	133	42
1308	AAU27671	Homo sapiens	ZYMO Human protein AFP355471.	486	100
1308	AAO12566	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 26458.	61	28
1308	gi167933	Dictyostelium discoideum	thioredoxin	67	34
1309	AAR15222	Homo sapiens	TEXA Chronic myelogenous leukaemia-derived myeloid-related protein.	620	100
1309	gi181527	Homo sapiens	Human neutrophil peptide (defensin) 1 mRNA, complete cds.	493	100
1309	gi181529	Homo sapiens	Human defensin 1 protein mRNA, complete cds.	493	100
1310	gi2911559	Human papillomavirus type 77	E6 protein	66	27
1310	gi9800324	rat cytomegalovirus Maastricht	pr109	62	25
1310	gi397007	Human papillomavirus type 3	envelope protein	60	31
1311	AAU19632	Homo sapiens	HUMA- Human novel extracellular matrix protein, Seq ID No 282.	205	40
1311	gi3127926	Homo sapiens	H.sapiens RNA for type VI collagen alpha3 chain.	186	42
1311	gi57960	Mus musculus	collagen alpha 3 chain type VI	176	40
1312	gi16508176	Homo sapiens	small GTP-binding tumor suppressor 1 mRNA, complete cds.	1012	100
1312	gi16555334	Homo sapiens	Rig protein mRNA, complete cds.	1012	100
1312	gi16508174	Mus musculus	small GTP-binding tumor suppressor 1	963	93
1313	AAG73984	Homo sapiens	HUMA- Human colon cancer antigen protein SEQ ID NO:4748.	55	40
1313	gi3041771	Homo sapiens	mRNA for perilipin, complete cds.	83	32
1313	AAY22157	Homo sapiens	ABBO Human BS135 protein sequence.	83	32
1314	AAM71801	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 32107.	1872	100
1314	gi16549907	Homo sapiens	cDNA FLJ30663 fis, clone	1203	58

Table 2A

171

SEQ ID	Hit ID	Species	Description	S score	% Identity
			FCBBF1000598, moderately similar to ZINC FINGER PROTEIN 84.		
1314	AAM78565	Homo sapiens	HYSE- Human protein SEQ ID NO 1227.	1151	55
1315	gi32472	Homo sapiens	H.sapiens mRNA for high-sulphur keratin.	785	76
1315	gi3228239	Homo sapiens	UHS KerA gene.	774	76
1315	gi34079	Homo sapiens	Human gene for ultra high-sulphur keratin protein.	774	76
1316	gi12655446	Homo sapiens	mRNA for keratin associated protein 4.4 (KRTAP4.4 gene).	755	80
1316	gi12655460	Homo sapiens	mRNA for keratin associated protein 4.12 (KRTAP4.12 gene).	726	75
1316	gi13278825	Homo sapiens	Similar to RIKEN cDNA 1110054P19 gene, clone MGC:2782 IMAGE:2959821, mRNA, complete cds.	726	75
1317	gi12655462	Homo sapiens	mRNA for keratin associated protein 4.14 (KRTAP4.14 gene).	1102	88
1317	gi12655452	Homo sapiens	mRNA for keratin associated protein 4.7 (KRTAP4.7 gene).	1081	84
1317	gi12655460	Homo sapiens	mRNA for keratin associated protein 4.12 (KRTAP4.12 gene).	997	79
1318	AAM79404	Homo sapiens	HYSE- Human protein SEQ ID NO 3050.	850	74
1318	AAM39466	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 2611.	844	77
1318	AAM41252	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 6183.	836	77
1319	gi16552172	Homo sapiens	cDNA FLJ32133 fis, clone PEBLM2000308, moderately similar to ZINC FINGER PROTEIN 135.	800	65
1319	gi6467200	Homo sapiens	GIOT-1 mRNA for gonadotropin inducible transcription repressor-1, partial cds.	775	60
1319	gi498721	Homo sapiens	H.sapiens HZF10 mRNA for zinc finger protein.	770	63
1320	gi3036963	Ciona savignyi	CsCDC42	163	60
1320	gi15072535	Schizophyllum commune	small GTPase CDC42	162	60
1320	gi520533	Drosophila melanogaster	Dcdc42	161	60
1321	AAE02058	Homo sapiens	HUMA- Human four disulfide core domain (FDCD)-containing protein.	517	43
1321	gi12655452	Homo sapiens	mRNA for keratin associated protein 4.7 (KRTAP4.7 gene).	509	44
1321	gi200964	Mus musculus	serine 2 ultra high sulfur protein	494	42
1322	ABB12490	Homo sapiens	HYSE- Human bone marrow expressed protein SEQ ID NO: 329.	169	72
1322	gi14647047	Puntius titteya	ATP synthase 8	56	37
1322	gi14646929	Barbus cyclolepis cyclolepis	ATP synthase 8	54	44

Table 2A

172

SEQ ID	Hit ID	Species	Description	S score	% Identity
1323	gi5921470	Homo sapiens	mRNA for G8 protein (G8 gene, located in the class III region of the major histocompatibility complex).	405	89
1323	gi5921473	Homo sapiens	mRNA for G8 protein (G8 gene, located in the class III region of the major histocompatibility complex), alternative splice variant lacking exon 2.	381	92
1323	AAM39144	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 2289.	381	92
1324	AAM87150	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:14743.	74	38
1324	AAB59115	Homo sapiens	HUMA- Breast and ovarian cancer associated antigen protein sequence SEQ ID 823.	62	36
1324	gi15158712	Agrobacterium tumefaciens str. C58 (Cereon)	AGR_L_725p	46	52
1325	AAY48404	Homo sapiens	META- Human prostate cancer-associated protein 101.	55	50
1325	AAM59935	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 32040.	55	38
1325	AAM72530	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 32836.	55	38
1326	gi466912	Mycobacterium leprae	tp2; B1549_C2_206	60	45
1326	gi1220377	Avian infectious bronchitis virus	nucleocapsid protein	64	56
1326	gi13177409	Ectocarpus siliculosus virus	EsV-1-135	65	34
1327	gi200964	Mus musculus	serine 2 ultra high sulfur protein	207	32
1327	gi200962	Mus musculus	serine 1 ultra high sulfur protein	202	32
1327	gi32472	Homo sapiens	H.sapiens mRNA for high-sulphur keratin.	196	32
1328	AAR23732	Homo sapiens	MINU Gene 519 cDNA derived peptide.	316	68
1328	gi35065	Homo sapiens	Human NKG5 mRNA, expressed in natural killer cells and T-cells.	314	66
1328	AAW59874	Homo sapiens	HUMA- Amino acid sequence of the cDNA clone CAT-1 (HTXET53).	314	66
1329	gi200964	Mus musculus	serine 2 ultra high sulfur protein	359	49
1329	AAM39466	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 2611.	341	51
1329	AAM78420	Homo sapiens	HYSE- Human protein SEQ ID NO 1082.	337	53
1330	gi13937769	Homo sapiens	Similar to RIKEN cDNA 1200013F24 gene, clone MGC:12197 IMAGE:3997840, mRNA, complete cds.	1256	100
1330	gi7582294	Homo sapiens	BM-011	781	98
1330	AAM79664	Homo sapiens	HYSE- Human protein SEQ ID NO 3310.	255	31
1331	gi14718451	Homo sapiens	sialic acid-binding lectin 11	796	71

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			(SIGLEC11) mRNA, complete cds.		
1331	AAY41724	Homo sapiens	GETH Human PRO940 protein sequence.	535	50
1331	AAB44280	Homo sapiens	GETH Human PRO940 (UNQ477) protein sequence SEQ ID NO:259.	535	50
1332	AAT90731_aa1	Homo sapiens	FARB Human placental bikunin cDNA.	849	98
1332	gi12804515	Homo sapiens	serine protease inhibitor, Kunitz type, 2, clone MGC:2021 IMAGB:2959462, mRNA, complete cds.	848	98
1332	gi2065529	Homo sapiens	placental bikunin mRNA, complete cds.	848	98
1333	gi14042550	Homo sapiens	cDNA FLJ14779 fis, clone NT2RP4000398, moderately similar to ZINC FINGER PROTEIN 140.	2165	98
1333	AAB93164	Homo sapiens	HELI- Human protein sequence SEQ ID NO:12091.	2165	98
1333	AAM93693	Homo sapiens	HELI- Human polypeptide, SEQ ID NO: 3604.	2159	100
1334	gi12804907	Homo sapiens	Similar to metaxin 1, clone MGC:2518 IMAGB:3546178, mRNA, complete cds.	1512	100
1334	gi1326108	Homo sapiens	Human metaxin (MTX) gene, complete cds.	1098	100
1334	gi2564913	Homo sapiens	clk2 kinase (CLK2), propin1, eote1, glucocerebrosidase (GBA), and metaxin genes, complete cds; metaxin pseudogene and glucocerebrosidase pseudogene; and thrombospondin3 (THBS3) gene, partial cds.	1098	100
1335	AAW85614	Homo sapiens	GEMY Secreted protein clone fs473_2.	381	83
1335	AAY94865	Homo sapiens	PROT- Human protein clone HP10540.	381	83
1335	AAY36022	Homo sapiens	GEST Extended human secreted protein sequence, SEQ ID NO. 407.	365	80
1336	AAB18447	Homo sapiens	MILL- Amino acid sequence of human TANGO 216 polypeptide.	2257	99
1336	AAB18455	Homo sapiens	MILL- A human TANGO 216 polypeptide clone.	2257	99
1336	AAU19662	Homo sapiens	HUMA- Human novel extracellular matrix protein, Seq ID No 312.	1876	96
1337	AAB18447	Homo sapiens	MILL- Amino acid sequence of human TANGO 216 polypeptide.	2257	99
1337	AAB18455	Homo sapiens	MILL- A human TANGO 216 polypeptide clone.	2257	99
1337	AAU19662	Homo sapiens	HUMA- Human novel extracellular matrix protein, Seq ID No 312.	1876	96
1338	AAY86303	Homo sapiens	HUMA- Human secreted protein HOGCK20, SEQ ID NO:218.	2133	94

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
1338	gi14456615	Homo sapiens	PIG-T mRNA for phosphatidyl inositol glycan class T, complete cds.	2120	96
1338	gi15929132	Homo sapiens	clone MGC:8909 IMAGE:3921680, mRNA, complete cds.	2120	96
1339	gi12836893	Gallus gallus	IPR328-like protein	160	29
1339	gi3093433	Homo sapiens	Chromosome 16 BAC clone CIT987SK-625P11, complete sequence.	153	29
1339	gi4558766	Homo sapiens	neuronal voltage gated calcium channel gamma-3 subunit mRNA, complete cds.	153	29
1340	gi12836893	Gallus gallus	IPR328-like protein	158	29
1340	gi3093433	Homo sapiens	Chromosome 16 BAC clone CIT987SK-625P11, complete sequence.	151	29
1340	gi4558766	Homo sapiens	neuronal voltage gated calcium channel gamma-3 subunit mRNA, complete cds.	151	29
1341	AAW85737	Homo sapiens	SAGA Polypeptide with transmembrane domain.	692	100
1341	ABB11882	Homo sapiens	HYSE- Human transmembrane protein homologue, SEQ ID NO:2252.	692	100
1341	AAG89353	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 473.	692	100
1342	ABB12032	Homo sapiens	HYSE- Human SIGP 2328134 homologue, SEQ ID NO:2402.	866	97
1342	AAY21851	Homo sapiens	INCY- Human signal peptide-contianing protein (SIGP) (clone ID 2328134).	866	97
1342	gi4101574	Homo sapiens	54TMp (54tm) mRNA, complete cds.	860	96
1343	gi3002925	Homo sapiens	T cell receptor beta chain (TCRBV13S1-TCRBJ2S1) mRNA, complete cds.	1658	100
1343	gi2982508	Homo sapiens	mRNA for TCR beta chain, specific for Mage 3/HLA-A2.	1527	94
1343	gi3002933	Homo sapiens	T cell receptor beta chain (TCRBV3S1-TCRBJ2S3) mRNA, complete cds.	1251	76
1344	gi14973269	Streptococcus pneumoniae TIGR4	cell wall surface anchor family protein	481	19
1344	gi15991793	Streptococcus gordonii	platelet binding protein OspB	303	17
1344	gi8885520	Streptococcus gordonii	streptococcal hemagglutinin	293	16
1345	AAY07751	Homo sapiens	HUMA- Human secreted protein fragment encoded from gene 8.	293	100
1345	gi1142588	Trypanosoma brucei	CR3	85	42
1345	gi3037018	Bodo saltans	NADH dehydrogenase subunit 5	80	35
1346	AAG78000	Homo sapiens	BIOW- Human actin 14.	663	100
1346	ABB17913	Homo sapiens	HUMA- Human nervous system related polypeptide SEQ ID NO	644	98

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			6570.		
1346	AAY94954	Homo sapiens	GEMY Human secreted protein clone iw66_1 protein sequence SEQ ID NO:114.	596	68
1347	gi9837433	Homo sapiens	sialic acid binding immunoglobulin-like lectin 8 long splice variant (Siglec8) gene, complete cds.	2206	88
1347	gi6746556	Homo sapiens	sialic acid-binding immunoglobulin-like lectin-8 (SIGLEC8) mRNA, complete cds.	2031	93
1347	gi6980022	Homo sapiens	siglec SAF2 (SAF2) mRNA, complete cds.	2031	93
1348	gi15451469	Homo sapiens	siglec-like protein (SLG2) gene and alternatively spliced variants, complete cds.	2689	99
1348	gi15217166	Homo sapiens	sialic acid-binding Ig-like lectin 10 (SIGLEC10) mRNA, complete cds.	2682	99
1348	gi14164613	Homo sapiens	sialic acid binding immunoglobulin-like lectin 10 (SIGLEC10) mRNA, complete cds.	2356	98
1349	AAB60112	Homo sapiens	INCY- Human transport protein TPPT-32.	775	100
1349	gi9663117	Homo sapiens	mRNA for organic cation transporter.	382	48
1349	AAB47000	Homo sapiens	BOEN/ Human BOCT protein.	382	48
1350	AAY76219	Homo sapiens	HUMA- Human secreted protein encoded by gene 96.	336	94
1350	gi2906006	Homo sapiens	WASP interacting protein (WIP) mRNA, partial cds.	134	30
1350	gi22269	Zea mays	cell wall protein (108 AA)	105	34
1351	AAB08767	Homo sapiens	INCY- A human leukocyte and blood related protein (LBAP).	92	37
1351	gi576631	Torpedo marmorata	14 kDa transmembrane protein	87	32
1351	AAM78542	Homo sapiens	HYSP- Human protein SEQ ID NO 1204.	72	31
1352	gi5817194	Homo sapiens	mRNA; cDNA DKFZp434F011 (from clone DKFZp434F011); partial cds.	221	95
1352	gi7576452	Homo sapiens	hBOIT mRNA for potent brain type organic ion transporter, complete cds.	160	36
1352	AAY06116	Homo sapiens	MILL- Human organic cation transporter OCT-3.	154	35
1353	gi16552104	Homo sapiens	cDNA FLJ32082 fis, clone OCBBF2000231, weakly similar to PHOSPHOLIPASE A2 INHIBITOR SUBUNIT B PRECURSOR.	2566	99
1353	AAY66713	Homo sapiens	GETH Membrane-bound protein PRO1309.	2566	99
1353	AAU12396	Homo sapiens	GETH Human PRO1309 polypeptide sequence.	2566	99
1354	gi15559274	Homo sapiens	clone MGC:20205	502	40

Table 2A

176

SEQ ID	Hit ID	Species	Description	S score	% Identity
			IMAGE:3627858, mRNA, complete cds.		
1354	AAB15549	Homo sapiens	INCY- Human immune system molecule from Incyte clone 2774913.	502	40
1354	AAB19729	Homo sapiens	CURA- Human SECX Clone 4339264-2 encoded protein.	502	40
1355	AAY99399	Homo sapiens	GETH Human PRO1268 (UNQ638) amino acid sequence SEQ ID NO:214.	603	100
1355	AAY78808	Homo sapiens	PROT- Hydrophobic domain containing protein clone HP10537 protein sequence.	603	100
1355	AAB87570	Homo sapiens	GETH Human PRO1268.	603	100
1356	AAM78418	Homo sapiens	HYSE- Human protein SEQ ID NO 1080.	1902	97
1356	ABB11897	Homo sapiens	HYSE- Human F22162_1 homologue, SEQ ID NO:2267.	1827	93
1356	AAM79402	Homo sapiens	HYSE- Human protein SEQ ID NO 3048.	1820	93
1357	gi397607	Homo sapiens	H.sapiens encoding CLA-1 mRNA.	2331	99
1357	AAY49573	Homo sapiens	WHED Human CLA-1 protein sequence.	2331	99
1357	AAW97900	Homo sapiens	MILL- Human SR-BI class B scavenger.	2318	98
1358	gi854065	Human herpesvirus 6	U88	348	31
1358	gi10434098	Homo sapiens	cDNA FLJ12547 fis, clone NT2RM4000634.	273	32
1358	AAB95124	Homo sapiens	HELI- Human protein sequence SEQ ID NO:17122.	273	32
1359	AAE05302	Homo sapiens	MILL- Human TANGO 457 protein.	1521	96
1359	AAE05303	Homo sapiens	MILL- Human mature TANGO 457 protein.	1397	96
1359	AAE05305	Homo sapiens	MILL- Human TANGO 457 protein cytoplasmic domain.	1260	100
1360	gi10129690	Homo sapiens	mRNA for mucolipidin (ML4 gene).	804	53
1360	gi10438844	Homo sapiens	cDNA: FLJ22449 fis, clone HRC09609.	804	53
1360	gi13477347	Homo sapiens	mucolipin 1, clone MGC:3287 IMAGE:3507836, mRNA, complete cds.	804	53
1361	AAE04122	Homo sapiens	HUMA- Human gene 23 encoded secreted protein HE8OK73, SEQ ID NO:108.	214	61
1361	AAE04169	Homo sapiens	HUMA- Human gene 23 encoded secreted protein HE8OK73, SEQ ID NO:158.	207	60
1361	AAG00392	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 4473.	117	43
1362	AAY27853	Homo sapiens	HUMA- Human secreted protein encoded by gene No. 101.	274	94
1362	gi904289	Phaseolus vulgaris	fungine endopolygalacturonase inhibitor	66	41

Table 2A

177

SEQ ID	Hit ID	Species	Description	S score	% Identity
1362	AAB27594	Homo sapiens	HUMA- Human secreted protein SEQ ID NO: 95.	60	58
1363	gi17016967	Homo sapiens	NUANCE (NUA) mRNA, complete cds; alternatively spliced.	3404	71
1363	gi17861384	Homo sapiens	nesprin-2 gamma mRNA, complete cds.	3404	71
1363	gi5262574	Homo sapiens	mRNA; cDNA DKFZp434G173 (from clone DKFZp434G173); complete cds.	3404	71
1364	AAB95854	Homo sapiens	HELI- Human protein sequence SEQ ID NO:18912.	72	37
1364	gi9621943	Pelargonium senecioides	NADH dehydrogenase	58	42
1364	gi9621945	Pelargonium trifidum	NADH dehydrogenase	58	42
1365	AAW29654	Homo sapiens	GEMY Human secreted protein DM406_1.	140	48
1365	gi10187870	Rhodococcus sp.	ohpA transport	75	26
1365	gi15559671	Homo sapiens	clone MGC:20633 IMAGE:4761663, mRNA, complete cds.	72	33
1366	gi10566471	Mus musculus	Gliacolin	850	68
1366	gi14278927	Mus musculus	gliacolin	850	68
1366	gi3747099	Mus musculus	C1q-related factor	724	66
1367	gi2745756	Aotus trivirgatus	ribonuclease k6 precursor	431	91
1367	gi5730384	Eulemur fulvus collaris	ribonuclease k6 precursor	305	86
1367	gi5730382	Nycticebus coucang	ribonuclease k6 precursor	279	80
1368	AAE09651	Homo sapiens	HUMA- Human gene 13 encoded lipid metabolism protein HTJNI73, SEQ ID NO:45.	484	98
1368	AAG64355	Homo sapiens	UYFU- Human lambda crystallin.	400	97
1368	AAY92506	Homo sapiens	INCY- Human OXRF-3 with identity to lambda crystallin.	381	98
1369	AAM25241	Homo sapiens	HYSE- Human protein sequence SEQ ID NO:756.	484	95
1369	AAE09651	Homo sapiens	HUMA- Human gene 13 encoded lipid metabolism protein HTJNI73, SEQ ID NO:45.	352	100
1369	AAG64355	Homo sapiens	UYFU- Human lambda crystallin.	268	98
1370	AAM79626	Homo sapiens	HYSE- Human protein SEQ ID NO 3272.	214	100
1370	AAM79368	Homo sapiens	HYSE- Human protein SEQ ID NO 3014.	70	44
1370	AAO02702	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 16594.	65	36
1371	gi6653659	Oryctolagus cuniculus	chloride channel CLC-6	3919	96
1371	ABB11826	Homo sapiens	HYSE- Human Cl channel homologue, SEQ ID NO:2196.	3865	96
1371	gi1770376	Homo sapiens	H.sapiens mRNA for chloride channel, CIC-6a.	1620	100
1372	AAG71967	Homo sapiens	YEDA Human olfactory receptor polypeptide, SEQ ID NO: 1648.	725	97
1372	AAG71962	Homo sapiens	YEDA Human olfactory receptor	714	95

Table 2A
178

SEQ ID	Hit ID	Species	Description	S score	% Identity
			polypeptide, SEQ ID NO: 1643.		
1372	gi12007416	Mus musculus	m51 olfactory receptor	553	72
1373	AAM63071	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 35176.	278	100
1373	AAM75882	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 36188.	278	100
1373	AAM67333	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 27639.	234	100
1374	AAH26531_aa1	Homo sapiens	REGC Human proton/oligonucleotide transporter hPHT1 cDNA.	920	100
1374	AAB82821	Homo sapiens	REGC Human proton/oligonucleotide transporter hPHT1 polypeptide.	815	100
1374	gi2208839	Rattus norvegicus	peptide/histidine transporter	721	82
1375	gi190418	Homo sapiens	Human cathepsin L gene, complete cds.	1597	87
1375	gi29715	Homo sapiens	Human mRNA for pro-cathepsin L (major excreted protein MEP).	1597	87
1375	AAW47031	Homo sapiens	USSH Human procathepsin L.	1597	87
1376	gi16566341	Homo sapiens	G protein-coupled receptor (GPR101) gene, complete cds.	2554	98
1376	AAB86428	Homo sapiens	BOEN/ Human brain SERALPHA protein.	2554	98
1376	AAU04369	Homo sapiens	AREN- Human G-protein coupled receptor, hRUP15.	2554	98
1377	AAY53605	Homo sapiens	METR- Peptide of human KChAP that binds to KValpha and Kvbeta subunits.	79	35
1377	AAY53608	Homo sapiens	METR- KChAP domain that binds to KValpha and Kvbeta subunits.	78	35
1377	gi6102853	Homo sapiens	mRNA; cDNA DKFZp727A051 (from clone DKFZp727A051); partial cds.	82	38
1378	AAB61616	Homo sapiens	PROT- Human protein HP10678.	2416	94
1378	AAG68126	Homo sapiens	FARB Human 7TM-GPCR protein sequence SEQ ID NO:6.	966	40
1378	AAE12023	Homo sapiens	INCY- Human G-protein coupled receptor, GCREC-2.	951	40
1379	AAY30735	Homo sapiens	HUMA- Amino acid sequence of a human secreted protein.	280	100
1379	gi333947	Human respiratory syncytial virus	membrane glycoprotein	48	39
1379	gi222567	Human respiratory syncytial virus	SH protein	48	39
1380	gi2459682	Homo sapiens	MAGE-B2 (MAGE-B2), MAGE-B3 (MAGE-B3), MAGE-B4 (MAGE-B4), and MAGE-B1 (MAGE-B1) genes, complete cds.	884	55
1380	gi3687199	Homo sapiens	Xp22 bins 169-171 BAC GSHB-383H3 (Genome Systems Human	884	55

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			BAC Library) complete sequence.		
1380	gi4033512	Homo sapiens	DAM10 exon 3, partial sequence; and DAM10=DSS-AHC critical interval MAGE superfamily protein (DAM10) gene, complete cds.	867	54
1381	gi10198115	Homo sapiens	2P domain potassium channel TREK2 (KCNK10) mRNA, complete cds.	2697	100
1381	gi8452900	Rattus norvegicus	potassium channel TREK-2	2556	95
1381	gi4584799	Mus musculus	TREK-1 K+ channel subunit	1244	65
1382	ABB11297	Homo sapiens	HYSE- Human Coxsackie adenovirus receptor homologue, SEQ ID NO:1667.	699	97
1382	gi14279421	Danio rerio	coxsackievirus and adenovirus receptor-like protein	312	40
1382	gi6013133	Rattus norvegicus	coxsackie-adenovirus-receptor homolog	306	39
1383	gi17016394	Homo sapiens	cervical cancer 1 proto-oncogene-binding protein KG19 (KG19) mRNA, complete cds.	753	100
1383	AAM58441	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 30546.	99	28
1383	AAB86126	Homo sapiens	HUMA- Human MIT-like protein fragment encoded by cDNA clone HMSMI80.	99	28
1384	AAM06866	Homo sapiens	HYSE- Human foetal protein, SEQ ID NO: 1074.	1133	95
1384	gi15099951	Mus musculus	diacylglycerol acyltransferase 2	959	51
1384	gi15099953	Homo sapiens	diacylglycerol acyltransferase 2 mRNA, complete cds.	951	50
1386	gi338506	Homo sapiens	Human salivary statherin gene, exons 2-6.	254	83
1386	gi338508	Homo sapiens	Human statherin mRNA, complete cds.	254	83
1386	AAY94527	Homo sapiens	INCY- Human statherin protein.	254	83
1387	gi10435784	Homo sapiens	cDNA FLJ13693 fis, clone PLACE2000111.	1011	100
1387	AAB94721	Homo sapiens	HELI- Human protein sequence SEQ ID NO:15739.	1011	100
1387	gi13592427	Caenorhabditis elegans	similar to glycoproteins	124	34
1388	gi12654579	Homo sapiens	peptidylprolyl isomerase B (cyclophilin B), clone MGC:2224 IMAGE:2966791, mRNA, complete cds.	918	98
1388	gi14250758	Homo sapiens	peptidylprolyl isomerase B (cyclophilin B), clone MGC:14109 IMAGE:3502055, mRNA, complete cds.	918	98
1388	gi337999	Homo sapiens	Human secreted cyclophilin-like protein (SCYLP) mRNA, complete cds.	918	98
1389	AAE07112	Homo sapiens	HUMA- Human gene 6 encoded secreted protein fragment, SEQ ID	2473	99

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NO:129.		
1389	gi9368530	Homo sapiens	mRNA full length insert cDNA clone EUROIMAGE 363668.	2457	99
1389	gi12053163	Homo sapiens	mRNA; cDNA DKFZp434D0727 (from clone DKFZp434D0727); complete cds.	2378	99
1390	gi16589056	Homo sapiens	type II gonadotropin-releasing hormone receptor gene, partial cds.	1021	99
1390	gi17048804	Homo sapiens	The CDS shown includes some apparent amino acids (from Gly 10 onw ards) which would be deleted in a short intron	1008	98
1390	gi14029600	Cercopithecus aethiops	GnRH receptor II	944	92
1391	gi16359249	Mus musculus	RIKEN cDNA 1300010M03 gene	2226	91
1391	AAM93450	Homo sapiens	HELI- Human polypeptide, SEQ ID NO: 3100.	575	37
1391	gi10438431	Homo sapiens	cDNA: FLJ22155 fis, clone HRC00205.	596	34
1392	AAE04896	Homo sapiens	INCY- Human transporter and ion channel-9 (TRICH-9) protein.	825	100
1392	gi12003980	Homo sapiens	spinster-like protein mRNA, complete cds.	695	52
1392	gi14249892	Homo sapiens	spinster-like protein, clone MGC:15767 IMAGE:3501826, mRNA, complete cds.	695	52
1393	AAG71515	Homo sapiens	YEDA Human olfactory receptor polypeptide, SEQ ID NO: 1196.	1051	94
1393	AAG72603	Homo sapiens	YEDA Human OR-like polypeptide query sequence, SEQ ID NO: 2284.	1051	94
1393	AAU24762	Homo sapiens	SENO- Human olfactory receptor AOLFR130B.	482	47
1394	AAB08894	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 4 SEQ ID NO:51.	165	59
1394	gi15626257	Buffalopox virus	p8 protein homologue	69	40
1394	AAO06451	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 20343.	69	35
1395	gi2792525	Equus caballus	connexin 43	64	35
1395	gi15148992	Human immunodeficiency virus type 1	vpu protein	64	30
1395	gi5738572	Human immunodeficiency virus type 1	VPU protein	60	33
1396	AAM83617	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:11210.	61	41
1396	gi4467773	Helicobacter pylori	cytotoxin associated protein A	60	34
1396	gi7248699	Helicobacter pylori	cytotoxin associated protein CagA	60	34
1397	gi11862939	Mus musculus	DDM36	5233	88
1397	gi11862941	Mus musculus	DDM36E	5224	88
1397	gi7650186	Mus musculus	neighbor of Punc e11 protein	5196	87

Table 2A

181

SEQ ID	Hit ID	Species	Description	S score	% Identity
1398	gi5596705	Homo sapiens	Novel human mRNA similar to C. elegans gene WP:CE18674, TR:Q19985.	1305	71
1398	gi15292481	Drosophila melanogaster	SD03655p	1174	59
1398	AAB88372	Homo sapiens	HELI- Human membrane or secretory protein clone PSEC0108.	886	71
1399	gi1335598	Simian sarcoma virus	coding sequence of p15E	64	33
1399	gi14039584	Casuarius casuarius	ATPase 8	55	50
1399	gi17427567	Ralstonia solanacearum	HYPOTHETICAL TRANSMEMBRANE PROTEIN	72	42
1400	AAM88491	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:16084.	38	41
1400	AAO09674	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 23566.	38	44
1400	gi3845106	Plasmodium falciparum	metal binding protein (DHHC domain)	55	36
1401	gi10434098	Homo sapiens	cDNA FLJ12547 fis, clone NT2RM4000634.	149	34
1401	AAB95124	Homo sapiens	HELI- Human protein sequence SEQ ID NO:17122.	149	34
1401	AAO09309	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 23201.	139	26
1402	AAE01249	Homo sapiens	HUMA- Human gene 18 encoded secreted protein HFIIN69, SEQ ID NO:111.	222	100
1402	AAE01299	Homo sapiens	HUMA- Human gene 18 encoded secreted protein HFIIN69, SEQ ID NO:162.	222	100
1402	AAE01332	Homo sapiens	HUMA- Human gene 18 encoded secreted protein fragment, SEQ ID NO:197.	222	100
1403	AAM06589	Homo sapiens	HYSE- Human foetal protein, SEQ ID NO: 320.	237	100
1403	gi10732779	Mus musculus	APRIL	56	43
1403	AAM87662	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:15255.	38	58
1404	AAO09486	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 23378.	486	98
1404	gi9955912	Homo sapiens	GPVI mRNA for platelet glycoprotein VI-2, complete cds.	288	37
1404	AAB40232	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 46 SEQ ID NO:142.	326	40
1405	AAM06606	Homo sapiens	HYSE- Human foetal protein, SEQ ID NO: 337.	50	34
1405	gi495989	Homo sapiens	Human rearranged IgH chain gene, VJ6 region, partial cds.	58	27
1405	AAM85487	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:13080.	56	32
1406	gi13377867	Gallus gallus	claudin-3	116	24
1406	gi15553371	Danio rerio	claudin c	112	26

Table 2A

182

SEQ ID	Hit ID	Species	Description	S score	% Identity
1406	gi15553375	Danio rerio	claudin h	110	23
1407	AAY78801	Homo sapiens	PROT- Hydrophobic domain containing protein clone HP00631 amino acid sequence.	701	100
1407	AAY32204	Homo sapiens	INCY- Human receptor molecule (REC) encoded by Incyte clone 2132179.	701	100
1407	gi5231135	Homo sapiens	androgen induced protein (AIG-1) mRNA, complete cds.	695	99
1408	gi13543940	Homo sapiens	Similar to RIKEN cDNA 2610017G09 gene, clone MGC:12975 IMAGE:3347312, mRNA, complete cds.	2232	96
1408	AAB12138	Homo sapiens	PROT- Hydrophobic domain protein isolated from HT-1080 cells.	2221	96
1408	AAG81335	Homo sapiens	ZYMO Human AFP protein sequence SEQ ID NO:188.	2218	96
1410	gi10719608	Homo sapiens	IL-22 receptor (IL22R) mRNA, complete cds.	1699	100
1410	AAW97861	Homo sapiens	ZYMO Human cytokine receptor 11 (Zcytor11).	1699	100
1410	AAY97045	Homo sapiens	MILL- Human TANGO 241.	1699	100
1411	gi14090278	Rattus norvegicus	TAT1	668	84
1411	gi458247	Homo sapiens	Human X-linked PEST-containing transporter (XPCT) mRNA, partial cds.	414	51
1411	gi458255	Homo sapiens	Human X-linked PEST-containing transporter (XPCT) gene, exon 6.	414	51
1412	gi4378057	Homo sapiens	organic anion transporter 1 (OAT1) mRNA, complete cds.	317	51
1412	gi4579725	Homo sapiens	mRNA for hOAT1-2, complete cds.	317	51
1412	gi5901645	Homo sapiens	organic anion transporter 1 (SLC22A6) mRNA, complete cds.	317	51
1413	gi3881524	Caenorhabditis elegans	ZK1067.4	714	41
1413	gi19322	Lycopersicon esculentum	glycine-rich protein	63	50
1413	gi2204081	Pinctada fucata	insoluble protein	93	52
1414	AAB43682	Homo sapiens	HUMA- Human cancer associated protein sequence SEQ ID NO:1127.	1522	100
1414	gi12654351	Homo sapiens	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 3, clone MGC:5280 IMAGE:2984830, mRNA, complete cds.	1522	100
1414	gi12654961	Homo sapiens	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 3, clone MGC:5556 IMAGE:3457151, mRNA, complete cds.	1522	100
1415	gi1764015	Ciona intestinalis	COS41.5	314	42
1415	AAM42167	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 7098.	284	30

Table 2A

183

SEQ ID	Hit ID	Species	Description	S score	% Identity
1415	AAE03438	Homo sapiens	HUMA- Human gene 12 encoded secreted protein HETHW90, SEQ ID NO: 121.	258	30
1416	gi13591714	Homo sapiens	immunoglobulin superfamily receptor translocation associated protein 2c (IRTA2) mRNA, complete cds, alternatively spliced.	1128	88
1416	gi15277746	Homo sapiens	Fc receptor-like protein 5 (FCRHS) mRNA, complete cds.	1128	88
1416	AAB82315	Homo sapiens	UYCO Human immunoglobulin receptor isoform IRTA2c.	1128	88
1417	AAV40386_aa1	Homo sapiens	INCY- Human zinc binding protein ZB-2 encoding cDNA.	525	80
1417	gi13278762	Homo sapiens	ring finger protein 5, clone MGC:2407 IMAGE:2822537, mRNA, complete cds.	525	80
1417	gi13366064	Homo sapiens	mRNA for HsRma1, complete cds.	525	80
1418	gi3077703	Oryctolagus cuniculus	mitsugumin29	1336	93
1418	gi3461888	Mus musculus	mitsugumin29	1314	91
1418	AAU25436	Homo sapiens	INCY- Human mddt protein from clone LG:171377.1:2000MAY19.	1050	96
1419	gi13452508	Mus musculus	claudin 14	371	40
1419	gi12597447	Homo sapiens	claudin 14 (CLDN14) mRNA, complete cds.	370	40
1419	gi15082421	Homo sapiens	Similar to claudin 14, clone MGC:20195 IMAGE:4684949, mRNA, complete cds.	370	40
1420	AAG00539	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 4620.	173	49
1420	AAU20426	Homo sapiens	HUMA- Human secreted protein, Seq ID No 418.	163	47
1420	AAG75413	Homo sapiens	HUMA- Human colon cancer antigen protein SEQ ID NO:6177.	159	50
1421	gi14486155	Bos taurus	Rh type B glycoprotein	1703	86
1421	gi15718471	Homo sapiens	Rh type B glycoprotein (RHBG) gene, exons 9, and 10 and complete cds.	1448	80
1421	gi9858562	Homo sapiens	Rh type B glycoprotein (RHBG) mRNA, complete cds.	1448	80
1422	AAM00949	Homo sapiens	HYSE- Human bone marrow protein, SEQ ID NO: 425.	215	46
1422	AAE01852	Homo sapiens	HUMA- Human gene 11 encoded secreted protein fragment, SEQ ID NO:175.	174	40
1422	gi14209834	Mus musculus	ATP-binding cassette transporter sub-family A member 7	178	38
1423	gi12053628	Homo sapiens	mRNA for ribonuclease 7.	718	99
1423	AAY44192	Homo sapiens	INNO- Human keratinocyte-derived RNase-like protein.	718	99
1423	AAB10601	Homo sapiens	SCHD Human SAP-2 pre-protein.	718	99
1424	AAM83996	Homo sapiens	HUMA- Human immune/haematopoietic antigen SEQ ID NO:11589.	1153	99
1424	AAG02219	Homo sapiens	GEST Human secreted protein, SEQ ID NO: 6300.	483	99

Table 2A
184

SEQ ID	Hit ID	Species	Description	S score	% Identity
1424	gi222902	Oncorhynchus keta	pituitary-specific transcription factor, Pit-1/GHF-1	98	32
1425	AAB82485	Homo sapiens	ZYMO Human secretin-like receptor Zgpr1.	499	92
1425	AAB82487	Homo sapiens	ZYMO Human secretin-like receptor Zgpr1 splice variant.	499	92
1425	AAE03382	Homo sapiens	HUMA- Human gene 5 encoded secreted protein HEOMX53, SEQ ID NO:40.	499	92
1426	gi6808374	Homo sapiens	mRNA; cDNA DKFZp434G0812 (from clone DKFZp434G0812); partial cds.	3211	100
1426	gi433383	Tripneustes gratilla	dynein heavy chain isotype 5A	241	26
1426	gi6706264	Leishmania major	dynein heavy chain	271	26
1428	gi13540300	Mus musculus	nucleolar protein C7B	427	34
1428	gi13561516	Mus musculus	nucleolar protein C7	426	34
1428	AAM25939	Homo sapiens	HYSE- Human protein sequence SEQ ID NO:1454.	156	90
1429	AAU27632	Homo sapiens	ZYMO Human protein AFP674535.	117	49
1429	AAM40391	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 3536.	117	49
1429	gi7022187	Homo sapiens	cDNA FLJ10261 fis, clone HEMBB1000975.	85	42
1430	AAY07751	Homo sapiens	HUMA- Human secreted protein fragment encoded from gene 8.	293	100
1430	gi1142588	Trypanosoma brucei	CR3	84	43
1430	AAO05990	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 19882.	72	33
1431	AAM93525	Homo sapiens	HELI- Human polypeptide, SEQ ID NO: 3259.	246	36
1431	AAY66693	Homo sapiens	GETH Membrane-bound protein PRO1004.	191	38
1431	AAB65216	Homo sapiens	GETH Human PRO1004 (UNQ488) protein sequence SEQ ID NO:227.	191	38
1432	AAB88388	Homo sapiens	HELI- Human membrane or secretory protein clone PSEC0131.	316	44
1432	AAB25719	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 6 SEQ ID NO:108.	84	73
1432	AAM62047	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 34152.	45	39
1433	AAB88388	Homo sapiens	HELI- Human membrane or secretory protein clone PSEC0131.	318	44
1433	AAB25719	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 6 SEQ ID NO:108.	86	66
1433	gi5629917	Homo sapiens	partial FLN2 gene for ABP-L, gamma filamin, exons 1 to 3.	77	34
1434	AAG75991	Homo sapiens	HUMA- Human colon cancer antigen protein SEQ ID NO:6755.	235	77

Table 2A

185

SEQ ID	Hit ID	Species	Description	S score	% Identity
1434	AAM78941	Homo sapiens	HYSE- Human protein SEQ ID NO 1603.	220	86
1434	ABB14802	Homo sapiens	HUMA- Human nervous system related polypeptide SEQ ID NO 3459.	58	40
1435	gi9621664	Homo sapiens	RHBDL gene for rhomboid-related protein.	1129	56
1435	gi14336709	Homo sapiens	16p13.3 sequence section 3 of 8.	1123	56
1435	gi3287191	Homo sapiens	mRNA for rhomboid-related protein, complete CDS.	1123	56
1436	gi7106866	Homo sapiens	HSPC238	238	56
1436	AAU15887	Homo sapiens	HUMA- Human novel secreted protein, Seq ID 840.	238	56
1436	AAU16342	Homo sapiens	HUMA- Human novel secreted protein, Seq ID 1295.	238	56
1437	gi1418942	Mus musculus	samaphorin G	5660	93
1437	AAY94990	Homo sapiens	ALPH- Human secreted protein vb21_1, SEQ ID NO:20.	5403	99
1437	gi2772584	Homo sapiens	semaphorin F homolog mRNA, complete cds.	3560	59
1439	gi11055322	Homo sapiens	vanilloid receptor-related osmotically activated channel (VROAC) mRNA, complete cds.	3324	100
1439	AAI66972_aa1	Homo sapiens	MILL- Human ion channel VR-5 cDNA sequence.	3319	99
1439	AAG65787	Homo sapiens	MILL- Human ion channel VR-5 protein sequence.	3318	99
1440	gi4155033	Helicobacter pylori J99	cag island protein	72	25
1440	AAU69567	Homo sapiens	PHAA Human G protein-coupled receptor from cDNA Seq-2643.	77	23
1440	gi13171062	turkey coronavirus	M protein	56	41
1441	gi16554186	Homo sapiens	cDNA FLJ25409 fis, clone TST03074.	644	100
1441	gi4235228	Mus musculus	leucine zipper-EF-hand containing transmembrane protein 1	497	59
1441	gi6599194	Homo sapiens	mRNA; cDNA DKFZp434C229 (from clone DKFZp434C229); partial cds.	493	63
1442	gi16359165	Homo sapiens	clone IMAGE:4645529, mRNA, partial cds.	1270	100
1442	ABB11242	Homo sapiens	HYSE- Human SLIT-2 homologue, SEQ ID NO:1612.	653	99
1442	AAB07469	Homo sapiens	ZYMO A human leucine-rich repeat protein designated Zlrr3.	451	36
1443	AAE03245	Homo sapiens	HUMA- Human gene 3 encoded secreted protein fragment, SEQ ID NO:95.	804	100
1443	AAE03244	Homo sapiens	HUMA- Human gene 3 encoded secreted protein fragment, SEQ ID NO:94.	799	100
1443	AAE03204	Homo sapiens	HUMA- Human gene 3 encoded secreted protein HNGNN78, SEQ ID NO:54.	617	100
1444	gi4062463	Escherichia coli	ABC transporter probable ATP-	697	91

Table 2A

186

SEQ ID	Hit ID	Species	Description	S score	% Identity
			binding subunit homolog		
1444	gi15487341	Escherichia coli	macrolide-specific ABC-type efflux carrier	697	91
1444	gi17743610	Agrobacterium tumefaciens str. C58 (Dupont)	ABC transporter, nucleotide binding/ATPase protein	366	51
1446	gi3168602	Homo sapiens	p160 mRNA, partial cds.	3755	89
1446	AAW31185	Homo sapiens	DAND Human p160 polypeptide 160.1.	3169	87
1446	gi3168604	Homo sapiens	proline and glutamic acid rich nuclear protein isoform mRNA, partial cds.	1641	99
1447	gi14042515	Homo sapiens	cDNA FLJ14761 fis, clone NT2RP3003302.	67	36
1447	AAG67254	Homo sapiens	HELI- Amino acid sequence of a human liver-associated gene.	67	36
1447	AAB94495	Homo sapiens	HELI- Human protein sequence SEQ ID NO:15188.	67	36
1448	AAB24058	Homo sapiens	GETH Human PRO290 protein sequence SEQ ID NO:7.	1972	100
1448	AAY66639	Homo sapiens	GETH Membrane-bound protein PRO290.	1972	100
1448	AAB65162	Homo sapiens	GETH Human PRO290 (UNQ253) protein sequence SEQ ID NO:33.	1972	100
1449	gi14043409	Homo sapiens	Similar to procollagen, type IV, alpha 3, clone MGC:11337 IMAGE:3953131, mRNA, complete cds.	89	75
1449	gi5420387	Leishmania major	proteophosphoglycan	86	24
1449	gi16117372	Macropodid herpesvirus 1	ICP4	102	27
1450	AAU27660	Homo sapiens	ZYMO Human protein AFP671052.	889	100
1450	AAG74151	Homo sapiens	HUMA- Human colon cancer antigen protein SEQ ID NO:4915.	748	100
1450	gi5670326	Homo sapiens	ICERE-1 mRNA, complete cds.	110	31
1451	AAY86519	Homo sapiens	HUMA- Human gene 71-encoded protein fragment, SEQ ID NO:434.	46	60
1451	AAM59183	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 31288.	61	39
1451	AAM71718	Homo sapiens	MOLE- Human bone marrow expressed probe encoded protein SEQ ID NO: 32024.	61	39
1452	gi12053219	Homo sapiens	mRNA; cDNA DKFZp434N1235 (from clone DKFZp434N1235); complete cds.	1031	93
1452	gi15559050	Ethmostigmus rubripes	ADP-ATP translocator	738	68
1452	gi339723	Homo sapiens	Human ADP/ATP translocase mRNA, 3' end, clone pHAT8.	693	68
1453	gi15025781	Clostridium acetobutylicum	Predicted membranc protein	136	32
1453	AAM95190	Homo sapiens	HUMA- Human reproductive system related antigen SEQ ID NO: 3848.	42	23

Table 2A
187

SEQ ID	Hit ID	Species	Description	S score	% Identity
1453	AAM55650	Homo sapiens	MOLE- Human brain expressed single exon probe encoded protein SEQ ID NO: 27755.	61	31
1454	gi4929597	Homo sapiens	CGI-64 protein mRNA, complete cds.	1879	96
1454	gi6995987	Homo sapiens	mitochondrial carrier homolog 1 isoform a mRNA, complete cds; nuclear gene for mitochondrial product.	1818	99
1454	gi6995989	Homo sapiens	mitochondrial carrier homolog 1 isoform b (MTCH1) mRNA, partial cds; nuclear gene for mitochondrial product.	1483	99
1455	gi17131893	Nostoc sp. PCC 7120	WD-repeat protein	248	26
1455	gi886024	Thermomonospora curvata	PkwA	248	30
1455	gi17225210	Podospora anserina	beta transducin-like protein HET-D2Y	250	25
1456	AAB36840	Homo sapiens	ZYMO Human insulin receptor-related receptor protein with signal peptide.	6733	98
1456	gi186555	Homo sapiens	Human insulin receptor-related receptor (IRR) mRNA, 3 ' end.	6728	99
1456	AAB36836	Homo sapiens	ZYMO Human insulin receptor-related receptor protein.	6728	99
1457	gi6453436	Homo sapiens	mRNA; cDNA DKFZp586E041 (from clone DKFZp586E041); partial cds.	10115	100
1457	ABB11803	Homo sapiens	HYSE- Human GPI-122 homologue, SEQ ID NO:2173.	6423	99
1457	AAY50125	Homo sapiens	GEMY Human glycophosphatidylinositol-anchored protein GPI-122.	6323	100
1458	AAU00023	Homo sapiens	BIOJ Human activated T-lymphocyte associated sequence 2, ATLAS-2.	3623	99
1458	AAE04546	Homo sapiens	INCY- Human G-protein coupled receptor-2 (GCREC-2) protein.	2570	79
1458	ABB11735	Homo sapiens	HYSE- Human vasopressin receptor homologue, SEQ ID NO:2105.	2546	100
1459	gi7021924	Homo sapiens	cDNA FLJ10081 fis, clone HEMBA1002018.	2742	100
1459	AAB92508	Homo sapiens	HELI- Human protein sequence SEQ ID NO:10631.	2742	100
1459	gi10435862	Homo sapiens	cDNA FLJ13751 fis, clone PLACE3000339, weakly similar to GLUCOAMYLASE S1/S2 PRECURSOR (EC 3.2.1.3).	2687	99
1460	AAM95163	Homo sapiens	HUMA- Human reproductive system related antigen SEQ ID NO: 3821.	75	33
1460	AAM06875	Homo sapiens	HYSE- Human foetal protein, SEQ ID NO: 1083.	68	45
1460	AAG76978	Homo sapiens	HUMA- Human colon cancer antigen protein SEQ ID NO:7742.	65	39

Table 2A

188

SEQ ID	Hit ID	Species	Description	S score	% Identity
1461	gi1353365	Macaca fascicularis	MHC-G	84	30
1461	gi2655072	Pan troglodytes	MHC class I antigen HLA-H ortholog	72	28
1461	gi2655078	Pan paniscus	MHC class I antigen HLA-H ortholog	72	28
1462	gi11066090	Homo sapiens	matrix metalloprotease MMP-27 mRNA, complete cds.	1191	85
1462	AAE10410	Homo sapiens	SCHA/ Human full length matrix metalloproteinase-25I (MMP-25I) protein.	1188	85
1462	AAY90293	Homo sapiens	INCY- Human peptidase, HPEP-10 protein sequence.	1188	85
1463	gi601948	Drosophila melanogaster	Insuteable	126	25
1463	gi1657962	Drosophila melanogaster	Nem	115	26
1463	gi15281684	Bacteriophage Mx8	p4	66	40
1464	AAB45378	Homo sapiens	HUMA- Human secreted protein sequence encoded by gene 38 SEQ ID NO:130.	434	87
1464	gi406058	Mus musculus	protein kinase	219	54
1464	gi13537204	Homo sapiens	mRNA for MAST205, complete cds.	216	54
1466	AAY97293	Homo sapiens	INCY- Lipid associated protein (LIPAP) 3335404CD1.	1894	77
1466	AAB24231	Homo sapiens	INCY- Human vesicle associated protein 10 SEQ ID NO:10.	1116	48
1466	AAM39997	Homo sapiens	HYSE- Human polypeptide SEQ ID NO 3142.	1116	48
1467	gi13278855	Homo sapiens	calcium binding atopy-related autoantigen 1, clone MGC:2891 IMAGE:3009677, mRNA, complete cds.	919	96
1467	gi13278921	Homo sapiens	calcium binding atopy-related autoantigen 1, clone MGC:4521 IMAGE:3009677, mRNA, complete cds.	919	96
1467	AAB58329	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 667.	919	96
1468	gi12654401	Homo sapiens	Similar to RNA cyclase homolog, clone MGC:1390 IMAGE:3343468, mRNA, complete cds.	690	78
1468	gi10434565	Homo sapiens	cDNA FLJ12842 fis, clone NT2RP2003286, weakly similar to PROBABLE RNA 3'-TERMINAL PHOSPHATE CYCLASE (EC 6.5.1.4).	690	78
1468	AAB97250	Homo sapiens	HOMO RNA cyclase 41 protein.	690	78
1469	gi12053215	Homo sapiens	mRNA; cDNA DKFZp434K2435 (from clone DKFZp434K2435); complete cds.	273	98
1469	gi2633333	Bacillus subtilis	yhaJ	57	25
1469	gi15023682	Clostridium acetobutylicum	Glycosyltransferase involved in cell wall biogenesis	73	34

Table 2A

189

SEQ ID	Hit ID	Species	Description	S score	% Identity
1470	gi14290599	Homo sapiens	clone MGC:17624 IMAGE:3855543, mRNA, complete cds.	347	100
1470	gi65265	Xenopus laevis	a xenopus upstream binding factor	131	29
1470	gi65201	Xenopus laevis	RNA polymerase I transcription factor	128	29
1471	gi13182747	Homo sapiens	microsomal signal peptidase subunit mRNA, complete cds.	148	96
1471	AAW29660	Homo sapiens	Homo sapiens CH27_1 clone secreted protein.	148	96
1471	gi164084	Canis familiaris	signal peptidase 21 kDa subunit	141	90
1472	AAG03600	Homo sapiens	Human secreted protein, SEQ ID NO: 7681.	245	86
1472	gi7770239	Homo sapiens	PRO2831	139	71
1472	gi14026000	Mesorhizobium loti	transposase	64	46
1473	gi3065951	Homo sapiens	Notch3 (NOTCH3) gene, exon 33 and complete cds.	99	58
1473	gi2668592	Homo sapiens	Notch3 (NOTCH3) mRNA, complete cds.	99	58
1473	AAW49698	Homo sapiens	Human Notch3 protein.	99	58
1474	gi458938	Saccharomyces cerevisiae	Yhr186cp	156	58
1474	gi5921144	Schizosaccharomyces pombe	mip1	151	83
1474	gi6459542	Deinococcus radiodurans	serine/threonine protein kinase-related protein	96	31
1475	gi6562173	Homo sapiens	mRNA; cDNA DKFZp566H033 (from clone DKFZp566H033); partial cds.	295	91
1475	AAB38280	Homo sapiens	Human secreted protein sequence encoded by gene 20 SEQ ID NO:136.	289	96
1475	AAB94892	Homo sapiens	Human protein sequence SEQ ID NO:16234.	284	89
1476	gi7160973	Homo sapiens	mRNA for VNN3 protein.	1954	93
1476	gi6102996	Mus musculus	Vanin-3	1661	73
1476	gi6649540	Canis familiaris	TIFF66	1370	67
1477	gi7959741	Homo sapiens	PRO1051	134	76
1477	gi172903	Saccharomyces cerevisiae	transcription factor IIIA	113	26
1477	gi786305	Saccharomyces cerevisiae	Transcription factor TFIIIA (PIR accession number S20050)	113	26
1478	gi12652825	Homo sapiens	voltage-dependent anion channel 2, clone MGC:5237 IMAGE:2901130, mRNA, complete cds.	483	74
1478	gi15277577	Homo sapiens	voltage-dependent anion channel 2, clone MGC:21498 IMAGE:3875077, mRNA, complete cds.	483	74
1478	gi5114261	Homo sapiens	voltage-dependent anion channel isoform 2 (VDAC2) gene, exon 10 and complete cds.	483	74
1479	gi10435380	Homo sapiens	cDNA FLJ13381 fis, clone PLACE1001010.	133	58

Table 2A

190

SEQ ID	Hit ID	Species	Description	S score	% Identity
1479	AAB94622	Homo sapiens	Human protein sequence SEQ ID NO:15476.	133	58
1479	AAB85361	Homo sapiens	Human phosphatase (PP) (clone ID 7472032CD1).	118	50
1480	gi12803725	Homo sapiens	APG5 (autophagy 5, S. cerevisiae)-like, clone MGC:3622 IMAGE:3609927, mRNA, complete cds.	204	100
1480	gi2995198	Homo sapiens	H.sapiens mRNA for apoptosis specific protein.	204	100
1480	gi12006864	Homo sapiens	apoptosis-related protein (APG5L) mRNA, complete cds, alternatively spliced.	204	100
1481	gi12619679	Conus arenatus	conotoxin scaffold VI/VII precursor	56	25
1481	gi2661493	Drosophila melanogaster	56F3.e	72	34
1481	gi2648663	Archaeoglobus fulgidus	DNA-directed RNA polymerase, subunit H (rpoH)	55	27
1482	gi12654623	Homo sapiens	RAB31, member RAS oncogene family, clone MGC:1258 IMAGE:3534853, mRNA, complete cds.	194	58
1482	gi1457954	Homo sapiens	Human small GTP-binding protein rab22b mRNA, complete cds.	194	58
1482	gi1388195	Homo sapiens	Human low-Mr GTP-binding protein (RAB31) mRNA, complete cds.	194	58
1483	gi7959778	Homo sapiens	PRO1546	163	65
1483	AAG02753	Homo sapiens	Human secreted protein, SEQ ID NO: 6834.	154	68
1483	AAB93922	Homo sapiens	Human protein sequence SEQ ID NO:13907.	137	59
1484	gi6979921	Drosophila melanogaster	RhoGTPase	160	32
1484	gi7263024	Drosophila melanogaster	G protein RhoBTB	160	32
1484	gi15291731	Drosophila melanogaster	LD24835p	160	32
1485	gi14150450	Rattus norvegicus	UDP-GalNAc:polypeptide N-acetylgalactosaminyltransferase T9	246	93
1485	gi3047203	Caenorhabditis elegans	GLY7	128	54
1485	gi304259	Bos taurus	UDP-GalNAc:polypeptide, N-acetylgalactosaminyltransferase	109	45
1486	AAB95830	Homo sapiens	Human protein sequence SEQ ID NO:18850.	202	76
1486	AAG03710	Homo sapiens	Human secreted protein, SEQ ID NO: 7791.	192	73
1486	AAG02922	Homo sapiens	Human secreted protein, SEQ ID NO: 7003.	182	69
1487	AAB38012	Homo sapiens	Human secreted protein encoded by gene 3 clone HNHCT15.	1244	84
1487	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:121.	1249	85
1487	gi339771	Homo sapiens	Human transposon L1.1 with a	1243	84

Table 2A
191

SEQ ID	Hit ID	Species	Description	S score	% Identity
			base deletion relative to L1.2B resulting in a premature stop codon in the coding region.		
1488	gi13560707	Homo sapiens	group XIII secreted phospholipase A2 mRNA, complete cds.	383	98
1488	gi15824793	Homo sapiens	group XIII secreted phospholipase A2	383	98
1488	AAY27572	Homo sapiens	Human secreted protein encoded by gene No. 6.	383	98
1489	gi2995442	Homo sapiens	mRNA for UDPGal:GlcNAc b1,4 galactosyltransferase.	996	98
1489	gi4520136	Homo sapiens	mRNA for beta-1,4-galactosyltransferase II, complete cds.	996	98
1489	gi3869131	Mus musculus	beta-1,4-galactosyltransferasc II	946	94
1490	AAM06551	Homo sapiens	Human foetal protein, SEQ ID NO: 282.	140	49
1490	AAB51718	Homo sapiens	Human secreted protein sequence encoded by gene 45 SEQ ID NO:158.	129	58
1490	gi1196431	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	124	52
1491	gi12052884	Homo sapiens	mRNA; cDNA DKFZp564C2478 (from clone DKFZp564C2478); complete cds.	487	98
1491	gi7023332	Homo sapiens	cDNA FLJ10961 fis, clone PLACE1000588, highly similar to INTERFERON-INDUCED GUANYLATE-BINDING PROTEIN 1.	487	98
1491	AAB93371	Homo sapiens	Human protein sequence SEQ ID NO:12521.	487	98
1492	AAG00392	Homo sapiens	Human secreted protein, SEQ ID NO: 4473.	150	81
1492	AAB54106	Homo sapiens	Human pancreatic cancer antigen protein sequence SEQ ID NO:558.	136	71
1492	gi914110	Streptococcus pyogenes	EmmL15	107	20
1493	gi6855513	Gallus gallus	syndesmos	554	60
1493	gi13623247	Homo sapiens	Similar to RIKEN cDNA 1110001K21 gene, clone MGC:11275 IMAGE:3944355, mRNA, complete cds.	534	58
1493	gi12544542	Corynebacterium glutamicum	RXA02115	99	28
1494	gi12082725	Mus musculus	B cell phosphoinositide 3-kinase adaptor	335	62
1494	gi12082811	Gallus gallus	B cell phosphoinositide 3-kinase adaptor	211	48
1494	gi330842	Equine herpesvirus 1	myristylated virion protein	61	33
1495	AAB43811	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1256.	273	100
1495	AAB64482	Homo sapiens	Human secreted protein sequence encoded by gene 13 SEQ ID NO:120.	273	100
1495	gi5106795	Homo sapiens	sec61 homolog mRNA, complete	273	100

Table 2A

192

SEQ ID	Hit ID	Species	Description	S score	% Identity
			cds.		
1496	AAE01786	Homo sapiens	Human gene 17 encoded secreted protein HWBEM18, SEQ ID NO:107.	4730	97
1496	gi6650678	Mus musculus	nuclear pore membrane glycoprotein POM210	4025	76
1496	gi56463	Rattus norvegicus	gp210 (AA 1-1886)	4000	79
1497	gi185996	Homo sapiens	Human Ig germline kappa L-chain V-region gene (HK166), V-kappa-1.	607	100
1497	AAR38651	Homo sapiens	Human V-kappa fragment encoded by clone vk65.15.	607	100
1497	AAR62931	Homo sapiens	Human V-kappa vk65.15 region.	607	100
1498	gi431857	Homo sapiens	H.sapiens mRNA for delta 4-3-oxosteroid 5 beta-reductase.	460	76
1498	gi11640835	Homo sapiens	5-beta steroid reductase (SRD5B1) gene, exon 9 and complete cds.	460	76
1498	gi5689216	Oryctolagus cuniculus	delta4-3-oxosteroid 5beta-reductase	442	70
1499	gi1752736	Saccharomyces cerevisiae	gene required for phosphoylation of oligosaccharides/ has high homology with YJR061w	210	47
1499	AAB53977	Homo sapiens	Human colon cancer antigen protein sequence SEQ ID NO:1517.	178	71
1499	AAB27956	Homo sapiens	Human secreted protein SEQ ID NO: 110.	177	65
1500	AAB93159	Homo sapiens	Human protein sequence SEQ ID NO:12081.	2209	64
1500	AAB58796	Homo sapiens	Breast and ovarian cancer associated antigen protein sequence SEQ ID 504.	1455	65
1500	gi13377567	Vibrio cholerae	accessory colonization factor AcfD	105	26
1501	AAB95655	Homo sapiens	Human protein sequence SEQ ID NO:18417.	186	78
1501	AAB95596	Homo sapiens	Human protein sequence SEQ ID NO:18279.	172	80
1501	gi1196433	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	182	78
1502	AAB58202	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 540.	427	100
1502	gi4572328	Homo sapiens	caveolin-1 gene, exon 3 and complete cds.	345	100
1502	gi6599075	Homo sapiens	caveolin-1/-2 locus, Contig1, D7S522, genes CAV2 (exons 1, 2a, and 2b), CAV1 (exons 1 and 2).	345	100
1503	gi199584	Mus musculus	MHox	405	96
1503	gi51362	Mus musculus	DNA-binding protein	405	96
1503	gi1836044	Rattus sp.	rHox protein	405	96
1504	gi8163762	Homo sapiens	membrane cofactor protein CD46 variant (MCP) mRNA, partial cds.	639	83
1504	AAB58394	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 732.	635	82
1504	AAG75528	Homo sapiens	Human colon cancer antigen	635	82

Table 2A

193

SEQ ID	Hit ID	Species	Description	S score	% Identity
			protein SEQ ID NO:6292.		
1505	gi15990400	Homo sapiens	clone IMAGE:3954884, mRNA, partial cds.	872	83
1505	gi3523113	Homo sapiens	prostate-specific transglutaminase (TGM4) gene, alternative spliced variant, exon 2 and partial cds.	92	46
1505	AAB54389	Homo sapiens	Human pancreatic cancer antigen protein sequence SEQ ID NO:841.	84	56
1506	AAB94891	Homo sapiens	Human protein sequence SEQ ID NO:16231.	214	65
1506	gi1196431	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	197	66
1506	AAB38280	Homo sapiens	Human secreted protein sequence encoded by gene 20 SEQ ID NO:136.	196	69
1507	gi1184173	Homo sapiens	Human nucleoporin 98 (NUP98) mRNA, complete cds.	1058	100
1507	gi11414896	Homo sapiens	NUP98 mRNA for nucleoporin, complete cds.	1058	100
1507	gi4545101	Homo sapiens	cell-line HeLa Nup98-Nup96 precursor splice variant 1 mRNA, complete cds.	1060	88
1508	gi5106521	Homo sapiens	K-Cl cotransporter KCC4 mRNA, complete cds.	1062	96
1508	gi10440500	Homo sapiens	mRNA for FLJ00098 protein, partial cds.	1062	96
1508	gi10440514	Homo sapiens	mRNA for FLJ00105 protein, partial cds.	1062	96
1509	gi6691968	Homo sapiens	Human DNA sequence from clone RP1-148M19 on chromosome Xp11.22-11.3 Contains ZNF741 (zinc finger protein), a ribosomal protein L23a pseudogene, STSs and GSSs, complete sequence.	293	81
1509	gi4096339	Homo sapiens	Human zinc finger protein (ZNF741) mRNA, complete cds.	293	81
1509	AAB21033	Homo sapiens	Human nucleic acid-binding protein, NuABP-37.	293	81
1510	AAB38012	Homo sapiens	Human secreted protein encoded by gene 3 clone HNHCT15.	426	57
1510	gi5052951	Homo sapiens	LINE1 element inserted in B-globin gene intron 2.	425	57
1510	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:121.	426	57
1511	gi16041769	Homo sapiens	clone MGC:23189 IMAGE:4854518, mRNA, complete cds.	313	55
1511	gi4454678	Homo sapiens	zinc finger protein 4	308	55
1511	gi186774	Homo sapiens	Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds.	321	55
1512	gi14027838	Mesorhizobium loti	transcriptional regulator	91	26
1513	gi4886463	Homo sapiens	mRNA; cDNA DKFZp586G1219 (from clone DKFZp586G1219); partial cds.	1039	100

Table 2A

194

SEQ ID	Hit ID	Species	Description	S score	% Identity
1513	gi4337460	Homo sapiens	neuroblastoma-amplified protein mRNA, complete cds.	1039	100
1513	AAB38417	Homo sapiens	Fragment of human secreted protein encoded by gene 5 clone HCGMF16.	1039	100
1514	gi1621611	Homo sapiens	Human TRAF family member-associated NF-kB activator TANK mRNA, complete cds.	1667	76
1514	gi1518018	Homo sapiens	Human TRAF-interacting protein I-TRAF mRNA, complete cds.	1655	77
1514	AAW27163	Homo sapiens	Human TRAF inhibitor protein I-TRAF.	1655	77
1515	gi12957169	Mus musculus	synaptotagmin-like protein 3-b	142	60
1515	gi13647085	Mus musculus	synaptotagmin-like protein 3-a delta 3S-II	142	60
1515	gi13647079	Mus musculus	synaptotagmin-like protein 3-a + 3S-I	142	60
1516	gi6688199	Homo sapiens	mRNA for AMP-activated protein kinase gamma2 subunit (AMPK gamma2 gene).	1055	93
1516	gi5931569	Homo sapiens	mRNA for H91620p, complete cds.	1055	93
1516	gi12642942	Homo sapiens	AMP-activated protein kinase gamma subunit (PRKAG2) mRNA, complete cds.	1055	93
1517	gi6807587	Homo sapiens	Novel human gene mapping to chomosome 1.	2360	100
1517	gi1769491	Homo sapiens	Human kruppel-related zinc finger protein (ZNF184) mRNA, partial cds.	1135	49
1517	gi186774	Homo sapiens	Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds.	904	41
1518	gi9956065	Homo sapiens	clone CDABP0092 mRNA sequence.	602	100
1518	gi4038733	Homo sapiens	mRNA for beta 2-microglobulin, complete cds.	602	100
1518	gi5725512	Homo sapiens	beta-2 microglobulin gene, complete cds.	602	100
1519	gi187177	Homo sapiens	Human lamin-like protein in HindIII repetitive element derived DNA, 3' end.	216	57
1519	gi339771	Homo sapiens	Human transposon L1.1 with a base deletion relative to L1.2B resulting in a premature stop codon in the coding region.	223	57
1519	gi5070622	Homo sapiens	retrotransposon L1 insertion in X-linked retinitis pigmentosa locus, complete sequence.	223	57
1520	AAE03963	Homo sapiens	Human gene 17 encoded secreted protein fragment, SEQ ID NO:142.	110	47
1520	gi4097459	Elephantulus edwardii	reverse transcriptase	109	47
1520	AAB94930	Homo sapiens	Human protein sequence SEQ ID NO:16405.	109	46
1521	gi10934047	Mus musculus	Scot-t1	1035	77
1521	gi10934052	Mus musculus	Scot-t2	1035	77

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
1521	gi164423	Sus scrofa	succinyl-CoA:alpha-ketoacid coenzyme A transferase	1024	81
1522	gi12003128	Eremothecium gossypii	Yer154p	108	31
1522	gi5052482	Drosophila melanogaster	BcDNA.GH02220	102	29
1522	gi6227006	Arabidopsis thaliana	F16G16.8	94	50
1523	gi3419880	Homo sapiens	mRNA for MDC/ADAM11, complete cds.	2989	100
1523	gi836683	Homo sapiens	Human metalloprotease/disintegrin-like (MDC) gene, partial cds.	2989	100
1523	AAR75352	Homo sapiens	Human fetal brain MDC protein.	2984	99
1524	gi1109782	Homo sapiens	Human protein-tyrosine phosphatase mRNA, complete cds.	2518	97
1524	gi1781037	Mus musculus	neuronal tyrosine threoninc phosphatase 1	1996	87
1524	AAB66436	Homo sapiens	Human MAP-kinase phosphatase hVH5.	883	99
1525	gi757911	Homo sapiens	H.sapiens mRNA for A2b adenosine receptor.	442	100
1525	gi178150	Homo sapiens	Human adenosine A2b receptor (ADORA2) mRNA, complete cds.	442	100
1525	AAR41526	Homo sapiens	Human A2b adenosine receptor.	442	100
1526	gi13540160	Homo sapiens	TCF12-TEC fusion protein mRNA, partial cds.	335	79
1526	gi183930	Homo sapiens	Human HEB helix-loop-helix protein (HEB) mRNA, complete cds.	337	75
1526	gi184448	Homo sapiens	transcription factor (HTF4) mRNA, complete cds.	337	75
1527	AAB43940	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1385.	741	95
1527	gi14602778	Homo sapiens	spermine synthase, clone MGC:2071 IMAGE:3506022, mRNA, complete cds.	690	95
1527	gi2198557	Homo sapiens	spermidine aminopropyltransferase mRNA, complete cds.	690	95
1528	gi13436152	Homo sapiens	reticulocalbin 2, EF-hand calcium binding domain, clone MGC:1650 IMAGE:3505241, mRNA, complete cds.	674	81
1528	gi469885	Homo sapiens	H.sapiens ERC-55 mRNA.	674	81
1528	AAW21949	Homo sapiens	E6-binding protein E6-BPSD7.	674	81
1529	gi10440331	Homo sapiens	cDNA: FLJ23591 fis, clone LNG14729.	606	100
1529	AAB84327	Homo sapiens	Amino acid sequence of a human lyase and associated protein HLYAP-2.	606	100
1529	gi15150358	Mus musculus	UDP-glucuronic acid decarboxylase	605	99
1530	AAB38012	Homo sapiens	Human secreted protein encoded by gene 3 clone HNHCT15	3094	92
1530	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID	3094	92

Table 2A

196

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NO:121.		
1530	gi5052951	Homo sapiens	LINE1 element inserted in B-globin gene intron 2.	3083	91
1531	gi5596433	Homo sapiens	candidate tumor suppressor protein NOC2 (NOC2) mRNA, complete cds.	330	87
1531	gi7020579	Homo sapiens	cDNA FLJ20462 fis, clone KAT06107.	330	87
1531	gi13477353	Homo sapiens	Similar to rabphilin 3A-like (without C2 domains), clone MGC:3453 IMAGE:3529317, mRNA, complete cds.	329	87
1532	gi1531645	Rattus norvegicus	C2-HC type zinc finger protein r-MyT3	1914	67
1532	gi2914751	Rattus norvegicus	neural zinc finger factor 3; NZF-3	1909	66
1532	gi1531653	Xenopus laevis	C2-HC type zinc finger protein X-MyT1	300	42
1533	gi12805043	Homo sapiens	clone IMAGE:3461487, mRNA, partial cds.	364	41
1533	AAG81328	Homo sapiens	Human AFP protein sequence SEQ ID NO:174.	356	41
1533	gi2226004	Homo sapiens	Human Tigger1 transposable element, complete consensus sequence.	441	71
1534	gi10436783	Homo sapiens	cDNA FLJ14341 fis, clone THYRO1000343, weakly similar to ATROPHIN-1.	3184	97
1534	AAB95860	Homo sapiens	Human protein sequence SEQ ID NO:18924.	3184	97
1534	gi12802159	Homo sapiens	SH3-SAM adaptor protein (HACS1) mRNA, complete cds.	515	46
1535	gi15928572	Mus musculus	Similar to leucine rich repeat (in FLII) interacting protein 2	103	66
1535	gi14091821	Oryza sativa	Putative protein with region similar to cyclin-dependent kinase like proteins	98	38
1535	gi7020214	Homo sapiens	cDNA FLJ20248 fis, clone COLF6543.	97	63
1536	AAG02639	Homo sapiens	Human secreted protein, SEQ ID NO: 6720.	160	71
1536	AAG02753	Homo sapiens	Human secreted protein, SEQ ID NO: 6834.	141	60
1536	gi7959778	Homo sapiens	PRO1546	140	60
1537	gi7022610	Homo sapiens	cDNA FLJ10521 fis, clone NT2RP2000841.	184	39
1537	AAB92909	Homo sapiens	Human protein sequence SEQ ID NO:11539.	184	39
1537	gi11527193	Drosophila melanogaster	sunday driver	112	41
1538	gi12654055	Homo sapiens	clone IMAGE:3455871, mRNA, partial cds.	849	85
1538	gi3133291	Homo sapiens	mitogen activated protein kinase activated protein kinase gene, complete cds.	844	85
1538	gi2911813	Mus musculus	mitogen-activated protein kinase-activated protein kinase	841	84

Table 2A
197

SEQ ID	Hit ID	Species	Description	S score	% Identity
1539	gi11761810	Arabidopsis thaliana	glutathione dependent dehydroascorbate reductase precursor	60	32
1540	gi13162677	Homo sapiens	GLUT4 enhancer factor mRNA, complete cds.	1399	99
1540	gi12655101	Homo sapiens	clone IMAGE:3140406, mRNA, partial cds.	1399	99
1540	AAB58934	Homo sapiens	Breast and ovarian cancer associated antigen protein sequence SEQ ID 642.	1395	99
1541	gi30058	Homo sapiens	Human mRNA for pro-alpha-1 type 3 collagen.	1606	98
1541	gi16197601	Homo sapiens	type III preprocollagen alpha 1 chain (COL3A1) gene, exon 1 and complete cds.	1606	98
1541	AAW12842	Homo sapiens	Truncated pro-alpha1(III) chain.	1606	98
1542	AAE01436	Homo sapiens	Human gene 1 encoded secreted protein HWLFJ10, SEQ ID NO:91.	1622	99
1542	AAE01464	Homo sapiens	Human gene 1 encoded secreted protein HWLFJ10, SEQ ID NO:119.	1618	98
1542	AAE01515	Homo sapiens	Human gene 1 encoded secreted protein fragment, SEQ ID NO:172.	1618	98
1543	gi186043	Homo sapiens	immunoglobulin light chain variable region (IGL@) mRNA, partial cds.	547	86
1543	gi219886	Homo sapiens	Human Ig kappa light chain gene, V- and J-region.	543	89
1543	gi33248	Homo sapiens	H.sapiens gene for Ig kappa light chain variable region '012'.	540	89
1544	gi7673618	Mus musculus	ubiquitin specific protease	1972	73
1544	gi7328168	Homo sapiens	mRNA; cDNA DKFZp434K1822 (from clone DKFZp434K1822); partial cds.	1004	74
1544	gi5823525	Drosophila melanogaster	ubiquitin-specific protease nonstop	957	41
1545	gi6693836	Rattus norvegicus	SNIP-b	3975	85
1545	gi6693834	Rattus norvegicus	SNIP-a	3975	85
1545	gi3098418	Mus musculus	P140	3699	75
1546	gi179433	Homo sapiens	Human biglycan (BGN) gene, exon 8.	2032	95
1546	gi12803217	Homo sapiens	biglycan, clone MGC:2298 IMAGE:3162633, mRNA, complete cds.	1512	96
1546	gi13279002	Homo sapiens	biglycan, clone MGC:10461 IMAGE:3503374, mRNA, complete cds.	1512	96
1547	gi14718648	Homo sapiens	allantoicase mRNA, partial cds.	777	95
1547	gi9255889	Mus musculus	allantoicase	1039	58
1547	gi4929823	Xenopus laevis	allantoicase	681	41
1548	gi12653161	Homo sapiens	ribosomal protein L35, clone MGC:8582 IMAGE:2960987, mRNA, complete cds.	203	78

Table 2A

198

SEQ ID	Hit ID	Species	Description	S score	% Identity
1548	gi15012043	Homo sapiens	Similar to ribosomal protein L35, clone MGC:13488 IMAGE:4251487, mRNA, complete cds.	203	78
1548	gi562074	Homo sapiens	Human ribosomal protein L35 mRNA, complete cds.	203	78
1549	gi1903236	Mus musculus	capping protein beta 3 subunit	156	100
1549	gi595257	Homo sapiens	Human F-actin capping protein beta subunit mRNA, complete cds.	156	100
1549	gi500749	Mus musculus	capping protein beta subunit, isoform 2	156	100
1550	gi15278186	Homo sapiens	MAGI-1A mRNA, complete cds, alternatively spliced.	526	91
1550	gi3370998	Homo sapiens	mRNA for BAI1-associated protein 1, complete cds.	526	91
1550	gi15278182	Homo sapiens	MAGI-1B alpha beta mRNA, complete cds, alternatively spliced.	526	91
1551	gi12654299	Homo sapiens	clone IMAGE:3447394, mRNA, partial cds.	1945	99
1551	gi11095188	Homo sapiens	dipeptidyl peptidase 8 (DPP8) mRNA, complete cds.	1357	67
1551	AAB47187	Homo sapiens	Human DPP8.	1357	67
1552	gi191012	Cricetus cricetus	ornithine decarboxylase	153	38
1552	gi49440	Cricetus cricetus	ornithine decarboxylase (AA 1-455)	153	38
1552	gi9858179	Danio rerio	ornithine decarboxylase	149	44
1553	gi12053087	Homo sapiens	mRNA: cDNA DKFZp434B0819 (from clone DKFZp434B0819); complete cds.	168	100
1553	gi16118555	Homo sapiens	ELMO1 mRNA, complete cds.	168	100
1553	gi16118551	Mus musculus	ELMO1	168	100
1554	AAY91640	Homo sapiens	Human secreted protein sequence encoded by gene 34 SEQ ID NO:313.	238	81
1554	AAB93352	Homo sapiens	Human protein sequence SEQ ID NO:12476.	238	81
1554	AAY91484	Homo sapiens	Human secreted protein sequence encoded by gene 34 SEQ ID NO:157.	233	100
1555	AAB38012	Homo sapiens	Human secreted protein encoded by gene 3 clone HNHCT15.	726	87
1555	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:121.	726	87
1555	gi1196433	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	727	87
1556	gi4530437	Homo sapiens	thyroid hormone receptor-associated protein complex component TRAP240 mRNA, complete cds.	1125	90
1556	gi7109237	Drosophila melanogaster	TRAP240	213	44
1556	gi7230590	Drosophila melanogaster	Pap/DTRAP240	213	44
1557	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID	2330	89

Table 2A
199

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NO:121.		
1557	AAB38012	Homo sapiens	Human secreted protein encoded by gene 3 clone HNHCT15.	2325	89
1557	gi5052951	Homo sapiens	LINE1 element inserted in B-globin gene intron 2.	2309	88
1558	gi11066463	Rattus norvegicus	RhoGEF glutamate transport modulator GTRAP48	3450	72
1558	gi7110160	Homo sapiens	guanine nucleotide exchange factor (LARG) mRNA, complete cds.	1063	50
1558	AAW64468	Homo sapiens	Human secreted protein from clone CW420_2.	1063	50
1559	gi10440888	Morone saxatilis	myosin heavy chain FM3A	456	51
1559	gi15982970	Danio rerio	myosin IIIA	476	55
1559	gi7958618	Homo sapiens	class III myosin (MYO3A) mRNA, complete cds, alternatively spliced.	456	51
1560	AAB93846	Homo sapiens	Human protein sequence SEQ ID NO:13688.	1112	66
1560	gi3834629	Mus musculus	diaphanous-related formin; p134 mDia2	565	28
1560	gi3171906	Homo sapiens	mRNA for dia-156 protein.	559	30
1561	AAB59019	Homo sapiens	Breast and ovarian cancer associated antigen protein sequence SEQ ID 727.	162	47
1561	AAG74843	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:5607.	88	52
1561	AAB95751	Homo sapiens	Human protein sequence SEQ ID NO:18660.	85	30
1562	gi13195147	Mus musculus	HCH	1228	87
1562	AAW03515	Homo sapiens	Human DOCK180 protein.	1308	56
1562	gi1339910	Homo sapiens	Human DOCK180 protein mRNA, complete cds.	1304	56
1563	AAB52017	Homo sapiens	Human secreted protein sequence encoded by gene 6 SEQ ID NO:66.	266	100
1563	gi6449393	Callinectes sapidus	copper-specific metallothioncin CuMT-II	57	37
1563	gi6010621	Human calicivirus strain BAV/2.1/98/DE U	RNA-dependent RNA polymerase	51	36
1564	gi540073	Homo sapiens	Human agouti gene, exon 3 and complete cds.	362	97
1564	gi608648	Homo sapiens	agouti signalling protein (ASP) gene, complete cds.	356	96
1564	AAW10102	Homo sapiens	Human agouti signalling protein.	352	84
1565	gi2463646	Homo sapiens	Human 3-hydroxy-3-methylglutaryl CoA synthase gene, exon 9 and complete cds.	1277	100
1565	gi619877	Homo sapiens	H.sapiens mRNA for 3-hydroxy-3-methylglutaryl coenzyme A synthase.	1277	100
1565	gi15928472	Mus musculus	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 2	1155	88
1566	gi5912057	Homo sapiens	mRNA; cDNA DKFZp434B172 (from clone DKFZp434B172); partial cds.	350	98

Table 2A

200

SEQ ID	Hit ID	Species	Description	S score	% Identity
1566	gi7578787	Homo sapiens	AD021 protein (AD021) mRNA, complete cds.	157	41
1566	AAB57036	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1614.	69	33
1567	gi2226005	Homo sapiens	Human Tigger1 transposable element, complete consensus sequence.	269	53
1567	gi7634783	Homo sapiens	HDCMB45P mRNA, partial cds.	210	43
1567	AAB39252	Homo sapiens	Human secreted protein sequence encoded by gene 12 SEQ ID NO:132.	126	61
1568	gi12653985	Homo sapiens	glycine cleavage system protein H (aminomethyl carrier), clone MGC:5190 IMAGE:3451361, mRNA, complete cds.	846	91
1568	gi184348	Homo sapiens	Human H-protein mRNA, complete cds.	846	91
1568	gi219671	Homo sapiens	mRNA for hydrogen carrier protein, a component of an enzyme complex, glycine synthase (EC 2.1.2.10).	846	91
1569	gi388109	Enterococcus faecalis	regulatory protein	64	47
1569	AAY25744	Homo sapiens	Human secreted protein encoded from gene 34.	56	50
1570	gi532505	Homo sapiens	Human bile acid CoA: Amino acid N-acyltransferase mRNA, complete cds.	2049	99
1570	gi15215152	Mus musculus	Similar to bile acid-Coenzyme A dehydrogenase: amino acid n-acyltransferase	1412	68
1570	gi604902	Rattus norvegicus	Kan-1	1394	68
1571	AAG89290	Homo sapiens	Human secreted protein, SEQ ID NO: 410.	198	97
1571	gi15487674	Homo sapiens	OSBP-related protein 1 mRNA, complete cds.	204	100
1571	AAB38248	Homo sapiens	Human secreted protein sequence encoded by gene 46 SEQ ID NO:104.	62	51
1572	gi4263739	Homo sapiens	BAC clone GS1-489L14 from 7p14-p12, complete sequence.	594	68
1572	gi6102812	Homo sapiens	GLI3 gene for GLI3 protein.	594	68
1572	gi183248	Homo sapiens	Human DNA-binding protein (GLI3) mRNA, complete cds.	594	68
1573	gi1019435	Trypanosoma cruzi	mucin-like protein	133	37
1573	gi1019433	Trypanosoma cruzi	mucin-like protein; Method: conceptual translation supplied by author	114	38
1573	gi1280434	Drosophila melanogaster	hemomucin	127	33
1574	AAB76873	Homo sapiens	Human lung tumour protein related protein sequence SEQ ID NO:798.	141	37
1574	gi6015472	Hylobates muelleri	dopamine receptor D4	133	34

Table 2A
201

SEQ ID	Hit ID	Species	Description	S score	% Identity
1574	gi13421134	Caulobacter crescentus	translation initiation factor IF-2	155	34
1575	AAB74709	Homo sapiens	Human membrane associated protein MEMAP-15.	1294	100
1575	gi14495648	Homo sapiens	clone MGC:15606 IMAGE:3163718, mRNA, complete cds.	334	36
1575	gi15721997	Homo sapiens	zonadhesin (ZAN) gene, complete cds, alternatively spliced.	173	20
1576	gi1181628	Homo sapiens	H.sapiens APXL mRNA.	1624	78
1576	gi1773381	Homo sapiens	chromosome X clone U177G4, U152H5, U168D5, 174A6, U172D6, and U186B3 from Xp22, complete sequence.	1624	78
1576	AAWS8988	Homo sapiens	Homo sapiens fetal kidney clone BD335_14 encoded protein.	317	71
1577	gi6979943	Homo sapiens	type 1 tumor necrosis factor receptor shedding aminopeptidase regulator mRNA, complete cds.	1499	86
1577	gi6381989	Homo sapiens	adipocyte-derived leucine aminopeptidase mRNA, complete cds.	1492	86
1577	gi6642987	Homo sapiens	aminopeptidase PILS (APPILS) mRNA, complete cds.	1492	86
1578	gi14626461	Rhizobium leguminosarum	HupE	82	28
1578	gi897	Canis familiaris	endothelin-2	64	36
1579	gi7657864	Homo sapiens	BAC clone RP11-236P2 from 2, complete sequence.	4025	98
1579	gi1374698	Homo sapiens	mRNA for nuclear protein, NP220, complete cds.	4014	98
1579	AAY07032	Homo sapiens	Breast cancer associated antigen precursor sequence.	4014	98
1580	gi551065	Mus musculus	protease-nexin 1	995	83
1580	gi14715029	Mus musculus	serine (or cysteine) proteinase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 2	995	83
1580	gi412265	Rattus norvegicus	glia-derived neurite-promoting factor (GdNPF)	994	82
1581	gi499184	Felis catus	neuronal protein	305	93
1581	gi10433455	Homo sapiens	cDNA FLJ12066 fis, clone HEMBB1002266, moderately similar to NEURONAL PROTEIN.	286	65
1581	AAB95041	Homo sapiens	Human protein sequence SEQ ID NO:16804.	286	65
1582	AAY13385	Homo sapiens	Amino acid sequence of protein PRO293.	3183	99
1582	AAB80253	Homo sapiens	Human PRO293 protein.	3183	99
1582	AAB33472	Homo sapiens	Human PRO1338 protein UNQ693 SEQ ID NO:279.	1676	55
1583	gi12803185	Homo sapiens	nucleophosmin (nucleolar phosphoprotein B23, numatrin), clone MGC:8463 IMAGE:2821577, mRNA, complete cds.	268	75

Table 2A

202

SEQ ID	Hit ID	Species	Description	S score	% Identity
1583	gi14250152	Homo sapiens	nucleophosmin (nucleolar phosphoprotein B23, numatrin), clone MGC:14826 IMAGE:4276604, mRNA, complete cds.	268	75
1583	gi15214852	Homo sapiens	nucleophosmin (nucleolar phosphoprotein B23, numatrin), clone MGC:13433 IMAGE:4097025, mRNA, complete cds.	268	75
1584	gi4406691	Homo sapiens	clone 24922 mRNA sequence, complete cds.	697	100
1584	gi7023544	Homo sapiens	cDNA FLJ11094 fis, clone PLACE1005373, weakly similar to TRNA PSEUDOURIDINE SYNTHASE B (EC 4.2.1.70).	697	100
1584	AAB93492	Homo sapiens	Human protein sequence SEQ ID NO:12796.	697	100
1585	gi155999	Bombyx mori	silk fibroin	147	39
1585	gi930003	Bombyx mori	silk fibroin (AA 37 - 252)	147	39
1585	gi765323	Bombyx mori	silk fibroin heavy chain	158	39
1586	gi12002682	Homo sapiens	FERM-containing protein (CG1) mRNA, alternative splice product, complete cds.	1282	89
1586	gi7669988	Homo sapiens	mRNA; cDNA DKFZp761N1814 (from clone DKFZp761N1814).	1090	86
1586	AAB12318	Homo sapiens	Human secreted protein encoded by gene 18 clone HE2FL70.	189	100
1587	gi5019618	Homo sapiens	HFB30 mRNA, complete cds.	1005	90
1587	gi4530066	Homo sapiens	androgen receptor associated protein 54 (ARA54) mRNA, complete cds.	1005	90
1587	AAY78418	Homo sapiens	Human androgen receptor coactivator ARA54 SEQ ID NO:2.	1005	90
1588	AAG73501	Homo sapiens	Human secreted protein fragment, SEQ ID NO:277.	285	94
1588	gi1196432	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	285	94
1588	gi339771	Homo sapiens	Human transposon L1.1 with a base deletion relative to L1.2B resulting in a premature stop codon in the coding region.	285	94
1589	AAB94900	Homo sapiens	Human protein sequence SEQ ID NO:16288.	287	67
1589	gi1196433	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	289	70
1589	gi1916229	Homo sapiens	Human line-1 reverse transcriptase gene, partial cds, and granulocyte chemotactic protein-2 (GCP-2) gene, complete cds.	278	70
1590	gi6562173	Homo sapiens	mRNA; cDNA DKFZp566H033 (from clone DKFZp566H033); partial cds.	227	88
1590	gi1335199	Homo sapiens	Human KpnI repetitive sequence (T-betaG41) 3kb downstream of beta-globin gene.	227	86
1590	AAB38280	Homo sapiens	Human secreted protein sequence	226	88

Table 2A
203

SEQ ID	Hit ID	Species	Description	S score	% Identity
			encoded by gene 20 SEQ ID NO:136.		
1591	gi10436007	Homo sapiens	cDNA FLJ13859 fis, clone THYRO1001033, weakly similar to TRANSFORMATION-SENSITIVE PROTEIN IEF SSP 3521.	1794	80
1591	AAB95593	Homo sapiens	Human protein sequence SEQ ID NO:18273.	1794	80
1591	gi7020708	Homo sapiens	cDNA FLJ20535 fis, clone KAT11013.	1789	79
1592	gi6599260	Homo sapiens	mRNA; cDNA DKFZp434P1721 (from clone DKFZp434P1721); partial cds.	1184	76
1592	gi10567164	Homo sapiens	GASC-1 mRNA, complete cds.	561	59
1592	AAR66461	Homo sapiens	AF-17 protein, N-terminal region with similarity to peregrin.	181	34
1593	gi182020	Homo sapiens	Human elastin gene, exon 1.	2405	89
1593	AAB08630	Homo sapiens	Amino acid sequence of a human elastin polypeptide.	2392	88
1593	gi182062	Homo sapiens	Human elastin mRNA, complete cds.	2386	88
1594	gi14424570	Homo sapiens	clone MGC:16614 IMAGE:4111344, mRNA, complete cds.	349	88
1594	gi1196433	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	349	89
1594	AAB38012	Homo sapiens	Human secreted protein encoded by gene 3 clone HNHCT15.	349	89
1595	gi291854	Homo sapiens	aminopeptidase A mRNA, complete cds.	934	100
1595	gi1518865	Sus scrofa	aminopeptidase A	876	89
1595	gi7673021	Rattus norvegicus	aminopeptidase A	847	85
1598	gi7288173	Homo sapiens	gene for alpha1,6 fucosyltransferase, exon 5.	367	100
1598	gi2055307	Homo sapiens	mRNA for N-Acetyl-beta-D-glucosaminide, complete cds.	367	100
1598	gi3451263	Homo sapiens	mRNA for glycoprotein 6-alpha-L-fucosyltransferase, transcript B1.	367	100
1599	AAB93267	Homo sapiens	Human protein sequence SEQ ID NO:12300.	149	46
1599	gi295671	Saccharomyces cerevisiae	selected as a weak suppressor of a mutant of the subunit AC40 of DNA dependant RNA polymerase I and III	123	25
1599	gi11559313	Halocynthia roretzi	synaptotagmin	121	24
1600	AAB48139	Homo sapiens	Human TANGO 209 variant 1 polypeptide.	219	79
1600	AAB48140	Homo sapiens	Human TANGO 209 variant 2 polypeptide.	219	79
1600	AAB48141	Homo sapiens	Human TANGO 209 variant 3 polypeptide.	224	51
1602	gi12053353	Homo sapiens	mRNA; cDNA DKFZp586D0222 (from clone DKFZp586D0222); complete cds.	548	82

Table 2A

204

SEQ ID	Hit ID	Species	Description	S score	% Identity
1602	gi7023456	Homo sapiens	cDNA FLJ11040 fis, clone PLACE1004388.	548	82
1602	gi10434241	Homo sapiens	cDNA FLJ12633 fis, clone NT2RM4001856.	548	82
1603	gi15082532	Homo sapiens	clone MGC:20434 IMAGE:4650497, mRNA, complete cds.	212	85
1603	gi13096814	Mus musculus	RIKEN cDNA 4932442K08 gene	165	72
1603	gi9622395	Plasmodium falciparum	variant surface protein	66	44
1604	gi1321596	Homo sapiens	Human (clone HSLV2132) Ig lambda light chain V region, subgroup II, partial sequence.	374	100
1604	AAG76014	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6778.	362	97
1604	AAB36212	Homo sapiens	Human immune system associated protein HISAP-10.	342	91
1605	gi10434674	Homo sapiens	cDNA FLJ12911 fis, clone NT2RP2004425, highly similar to Mus musculus axotrophin mRNA.	2340	94
1605	AAB95234	Homo sapiens	Human protein sequence SEQ ID NO:17375.	2340	94
1605	AAB27239	Homo sapiens	Human EXMAD-17 SEQ ID NO: 17.	2340	94
1606	gi8918522	Homo sapiens	PCCX2 mRNA for protein containing CXXC domain 2, partial cds.	2200	84
1606	gi14042116	Homo sapiens	cDNA FLJ14534 fis, clone NT2RM2000599, weakly similar to Homo sapiens F-box protein Lilina (LILINA) mRNA.	2446	78
1606	AAB92702	Homo sapiens	Human protein sequence SEQ ID NO:11102.	2446	78
1607	gi3176762	Homo sapiens	receptor for viral semaphorin protein (VESPR) mRNA, complete cds.	807	100
1607	AAY13462	Homo sapiens	Viral-encoded semaphorin protein receptor (VESPR) polypeptide.	807	100
1607	AAB28522	Homo sapiens	Human VESPR.	807	100
1608	gi1373425	Homo sapiens	Human bumetanide-sensitive Na-K-2Cl cotransporter (NKCC2) mRNA, complete cds.	1295	99
1608	AAW29683	Homo sapiens	Human Na-K-2Cl cotransporter NKCC2.	1295	99
1608	gi516000	Oryctolagus cuniculus	bumetanide-sensitive Na-K-Cl cotransport protein splice isoform B	1244	95
1609	AAB95655	Homo sapiens	Human protein sequence SEQ ID NO:18417.	229	61
1609	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:121.	221	58
1609	gi1196433	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	226	60
1610	AAB88388	Homo sapiens	Human membrane or secretory protein clone PSEC0131.	923	100
1610	AAB25719	Homo sapiens	Human secreted protein sequence	114	100

Table 2A

205

SEQ ID	Hit ID	Species	Description	S score	% Identity
			encoded by gene 6 SEQ ID NO:108.		
1610	AAB25718	Homo sapiens	Human secreted protein sequence encoded by gene 6 SEQ ID NO:107.	73	100
1611	AAY04734	Homo sapiens	Protein containing PDZ domain from clone 38-2-1c.	269	98
1611	AAY04732	Homo sapiens	Protein containing PDZ domain from clone 38-2-1a.	269	98
1611	AAY53753	Homo sapiens	Amino acid sequence of the MMSC2 protein.	269	98
1612	gi1794211	Homo sapiens	Human oncostatin-M specific receptor beta subunit (OSMRB) mRNA, complete cds.	1127	92
1612	AAR85912	Homo sapiens	Oncostatin M receptor-beta subunit.	1127	92
1612	gi15012082	Homo sapiens	Similar to oncostatin M receptor, clone MGC:13583 IMAGE:4043935, mRNA, complete cds.	1127	92
1613	gi12803103	Homo sapiens	heterogeneous nuclear ribonucleoprotein A1, clone MGC:8473 IMAGE:2821751, mRNA, complete cds.	406	82
1613	gi15082486	Homo sapiens	Similar to heterogeneous nuclear ribonucleoprotein A1, clone MGC:20389 IMAGE:4564655, mRNA, complete cds.	406	82
1613	gi496898	Homo sapiens	H.sapiens mRNA for hnRNPcore protein A1.	406	82
1614	gi12653633	Homo sapiens	lysyl oxidase-like 2, clone MGC:1709 IMAGE:3347512, mRNA, complete cds.	898	99
1614	gi1890108	Homo sapiens	Human lysyl oxidase-related protein (WS9-14) mRNA, complete cds.	898	99
1614	AAB00077	Homo sapiens	Human lysyl oxidase related protein (Lor).	898	99
1615	gi12803157	Homo sapiens	COX15 (yeast) homolog, cytochrome c oxidase assembly protein, clone MGC:8634 IMAGE:2961532, mRNA, complete cds.	159	52
1615	gi15426569	Homo sapiens	clone MGC:4234 IMAGE:2961532, mRNA, complete cds.	159	52
1615	gi3603230	Homo sapiens	cytochrome oxidase assembly factor (COX15) mRNA, nuclear gene encoding mitochondrial protein, complete cds.	159	52
1616	gi1215746	Bos taurus	vacuolar system associated protein-60	1309	67
1616	gi7672979	Homo sapiens	glucosidase II beta subunit mRNA, complete cds.	1656	71
1616	gi1293640	Homo sapiens	Human protein kinase C substrate 80K-H (PRKCSH) gene, exon 15-17.	1652	70

Table 2A

206

SEQ ID	Hit ID	Species	Description	S score	% Identity
1617	gi1418820	Homo sapiens	H.sapiens mRNA for gamma 1 isoform of 61kDa regulatory subunit of PP2A.	355	100
1617	gi1203812	Homo sapiens	Human protein phosphatase 2A B'alpha1 regulatory subunit mRNA, complete cds.	355	100
1617	gi1000892	Homo sapiens	protein phosphatase 2A B56-gamma1 (PP2A) mRNA, 3' end of cds.	355	100
1618	gi14010930	Homo sapiens	BAC clone RP11-576F1 from 2, complete sequence.	1868	100
1618	gi7022375	Homo sapiens	cDNA FLJ10379 fis, clone NT2RM2002014.	1863	99
1618	AAB92758	Homo sapiens	Human protein sequence SEQ ID NO:11220.	1863	99
1619	gi296665	Homo sapiens	Human bone marrow serine protease gene (medullasin) (leukocyte neutrophil elastase gene).	629	93
1619	gi34533	Homo sapiens	Human mRNA for medullasin (leukocyte (neutrophil) elastase.	629	93
1619	gi307123	Homo sapiens	Human elastase/medullasin mRNA, complete cds.	629	93
1620	gi9965989	Homo sapiens	calcineurin A catalytic subunit gamma isoform mRNA, complete cds.	1650	97
1620	gi258001	human, testis, mRNA, 2134 nt]. [Homo sapiens	calcineurin A catalytic subunit	1639	96
1620	gi13436077	Homo sapiens	clone MGC:10576 IMAGE:3677098, mRNA, complete cds.	1623	94
1621	gi1429374	Escherichia coli	DcuC protein	739	100
1621	gi13360118	Escherichia coli O157:H7	c4-dicarboxylate anaerobic carrier DcuC	739	100
1621	gi1786839	Escherichia coli K12	transport of dicarboxylates	739	100
1622	AAB82485	Homo sapiens	Human secretin-like receptor Zgpr1.	271	94
1622	AAB66272	Homo sapiens	Human TANGO 378 SEQ ID NO: 29.	271	94
1622	AAB82487	Homo sapiens	Human secretin-like receptor Zgpr1 splice variant.	271	94
1623	gi4062658	Escherichia coli	Flagellar basal body P-ring protein precursor	752	87
1623	gi1787320	Escherichia coli K12	homolog of Salmonella P-ring of flagella basal body	752	87
1623	gi13360922	Escherichia coli O157:H7	flagellar basal body P-ring protein FlgI	751	86
1624	gi1773192	Escherichia coli	similar to S. cerevisiae dal1	334	98
1624	gi2735238	Escherichia coli	GlxB3	334	98
1624	gi13360031	Escherichia coli O157:H7	allantoinase	333	96
1625	gi40992	Escherichia coli	dehydrogenase	1481	93
1625	gi13363752	Escherichia coli O157:H7	aspartate-semialdehyde dehydrogenase	1481	93

Table 2A
207

SEQ ID	Hit ID	Species	Description	S score	% Identity
1625	gi3859587	Shigella sonnei	aspartate semialdehyde dehydrogenase	1481	93
1626	gi146346	Escherichia coli	phenylalanyl-tRNA synthetase beta-subunit	735	94
1626	gi1742793	Escherichia coli	Phenylalanine--tRNA ligase (EC 6.1.1.20) b chain	735	94
1626	gi13361887	Escherichia coli O157:H7	phenylalanine tRNA synthetase beta-subunit	735	94
1627	AAB49502	Homo sapiens	Clone HYASC03.	310	98
1627	gi7020468	Homo sapiens	cDNA FLJ20396 fis, clone KAT00561.	144	48
1627	AAB18980	Homo sapiens	Amino acid sequence of a human transmembrane protein.	144	48
1628	gi14021587	Mesorhizobium loti	transcriptional regulator	333	38
1628	gi14523075	Sinorhizobium meliloti	probable LysR-family protein	329	39
1628	gi9949248	Pseudomonas aeruginosa	probable transcriptional regulator	327	37
1629	gi311422	Escherichia coli	ORF-2	282	100
1629	gi15081358	uncultured bacterium	PufM	53	41
1629	gi13362968	Escherichia coli O157:H7	holin protein	52	33
1630	gi159333	Leishmania major	glycoprotein 96-92	101	28
1630	AAY91958	Homo sapiens	Human cytoskeleton associated protein 13 (CYSKP-13).	100	28
1630	gi8163686	Streptococcus pneumoniae	surface protein PspC	105	29
1632	gi887820	Escherichia coli	UUG start; possible frameshift at end?	820	71
1632	gi466651	Escherichia coli	No definition line found	343	82
1632	gi1742360	Escherichia coli	Phosphinothricin acetyltransferase (EC 2.3.1.-).	248	83
1633	gi7022678	Homo sapiens	cDNA FLJ10565 fis, clone NT2RP2002954.	290	100
1633	AAB92950	Homo sapiens	Human protein sequence SEQ ID NO:11629.	290	100
1633	gi1755198	Cavia porcellus	nitric oxide synthase	71	33
1634	AAY48563	Homo sapiens	Human breast tumour-associated protein 24.	342	100
1634	gi12804499	Homo sapiens	ribonuclease 6 precursor, clone MGC:1360 IMAGE:2959583, mRNA, complete cds.	440	66
1634	gi12804759	Homo sapiens	ribonuclease 6 precursor, clone MGC:3554 IMAGE:2959583, mRNA, complete cds.	440	66
1635	gi10438872	Homo sapiens	cDNA: FLJ22471 fis, clone HRC10529.	1620	100
1635	AAY86509	Homo sapiens	Human gene 70-encoded protein fragment, SEQ ID NO:424.	696	100
1635	AAY86510	Homo sapiens	Human gene 70-encoded protein fragment, SEQ ID NO:425.	436	100
1636	gi8096340	Homo sapiens	mRNA for RERE, complete cds.	365	97
1636	gi7413896	group A	NSP3 protein	71	29

Table 2A

208

SEQ ID	Hit ID	Species	Description	S score	% Identity
		rotavirus			
1636	gi9368393	Human rotavirus	NSP3 protein	65	27
1637	AAB58426	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 764.	514	94
1637	AAB00191	Homo sapiens	Breast cancer protein BCN5.	514	94
1637	AAB85481	Homo sapiens	Human 23553 sulfatase polypeptide.	514	94
1638	AAY42750	Homo sapiens	Human calcium binding protein 1 (CaBP-1).	741	100
1638	gi12060826	Homo sapiens	serologically defined breast cancer antigen NY-BR-20 mRNA, partial cds.	673	89
1638	AAY07006	Homo sapiens	Breast cancer associated antigen precursor sequence.	637	88
1639	gi10434205	Homo sapiens	cDNA FLJ12612 fis, clone NT2RM4001582, highly similar to Mus musculus COP9 complex subunit 7b (COPS7b) mRNA.	908	86
1639	AAB94175	Homo sapiens	Human protein sequence SEQ ID NO:14484.	908	86
1639	gi15215085	Mus musculus	Similar to COP9 (constitutive photomorphogenic), subunit 7b (Arabidopsis)	900	85
1640	gi1334836	Human herpesvirus 4	BCRF2 3072 repeat, reading frame 1	98	29
1640	gi1334837	Human herpesvirus 4	BWRF1 reading frame 2	98	29
1640	gi1334838	Human herpesvirus 4	BWRF1 reading frame 3	98	29
1641	gi13161011	Homo sapiens	sclerostin gene, complete cds.	758	100
1641	gi13161020	Homo sapiens	sclerostin mRNA, complete cds.	758	100
1641	gi13236418	Homo sapiens	SOST (SOST) mRNA, complete cds.	758	100
1642	gi13436023	Mus musculus	RIKEN cDNA B230114J08 gene	279	94
1642	AAY36125	Homo sapiens	Extended human secreted protein sequence, SEQ ID NO. 510.	279	94
1642	AAY99458	Homo sapiens	Human PRO193 amino acid sequence SEQ ID NO:410.	279	94
1643	gi15680215	Homo sapiens	Similar to ribosomal protein L23a, clone MGC:23063 IMAGE:4872948, mRNA, complete cds.	428	76
1643	gi15990426	Homo sapiens	Similar to cadherin 1, type 1, E-cadherin (epithelial), clone MGC:23017 IMAGE:3959042, mRNA, complete cds.	428	76
1643	gi404015	Homo sapiens	Human ribosomal protein L23a mRNA, partial cds.	428	76
1644	gi12653271	Homo sapiens	thyroid hormone receptor interactor 13, clone MGC:8565 IMAGE:2822981, mRNA, complete cds.	514	82
1644	gi2232019	Homo sapiens	HPV16 E1 protein binding protein mRNA, complete cds.	514	82
1644	gi703102	Homo sapiens	thyroid receptor interactor (TRIP13) mRNA, partial cds.	513	82

Table 2A

209

SEQ ID	Hit ID	Species	Description	S score	% Identity
1646	gi13544066	Homo sapiens	Similar to mini chromosome maintenance deficient 2 (S. cerevisiae), clone MGC:13220 IMAGE:3959276, mRNA, complete cds.	273	98
1646	gi14043350	Homo sapiens	clone MGC:2123 IMAGE:3143264, mRNA, complete cds.	273	98
1646	gi14044016	Homo sapiens	clone MGC:14281 IMAGE:4131943, mRNA, complete cds.	273	98
1648	gi7960207	Oncorhynchus mykiss	vitelline envelope protein alpha	252	43
1648	gi160198	Plasmodium knowlesi	circumsporozoite protein	191	43
1648	gi15384295	Mycoplasma bovis	variable surface lipoprotein Vsp422-8	177	34
1650	gi474280	Mus musculus	mannosyl-oligosaccharide alpha-1,2-mannosidase	911	88
1650	gi15929672	Mus musculus	Similar to mannosidase 1, alpha	911	88
1650	gi2154997	Sus scrofa	Man9-mannosidase	869	83
1651	gi5915662	Homo sapiens	integrin alpha 11 subunit precursor (ITGA11) mRNA, complete cds.	542	84
1651	AAB30929	Homo sapiens	Amino acid sequence of a human alpha11 integrin chain.	542	84
1651	AAB50085	Homo sapiens	Human A259.	542	84
1652	gi4512295	Homo sapiens	DNA for immunoglobulin heavy-chain variable region, complete sequence, 3 of 5.	619	100
1652	gi296657	Homo sapiens	Human Ig heavy chain gene variable region V(12G-1) (v(h)-iv family).	613	99
1652	gi185579	Homo sapiens	H.sapiens immunoglobulin germline heavy chain gene, V region.	601	97
1654	AAE04841	Homo sapiens	Human SGP039 phosphatase polypeptide.	667	92
1654	gi2582800	Medicago sativa	protein phosphatase 2C	107	41
1654	gi8778653	Arabidopsis thaliana	F9C16.6	107	40
1655	gi9928511	Mycobacterium tuberculosis	SEQ ID NO 18B'	89	27
1655	gi13897999	Galleria mellonella	silk protease inhibitor 2 precursor	50	40
1655	gi204419	Rattus norvegicus	glycam 1	85	24
1656	gi12653509	Homo sapiens	DKFZP564K1964 protein, clone MGC:8605 IMAGE:2961267, mRNA, complete cds.	227	95
1656	gi5912199	Homo sapiens	mRNA; cDNA DKFZp564K1964 (from clone DKFZp564K1964); complete cds.	227	95
1656	gi4530587	Homo sapiens	TADA1 protein mRNA, complete cds.	227	95
1658	gi12654931	Homo sapiens	protein disulfide isomerase-related protein, clone MGC:5517 IMAGE:3454007, mRNA,	2281	100

Table 2A

SEQ ID	Hit ID	Species	Description	S score	% Identity
			complete cds.		
1658	gi1136743	Homo sapiens	Human mRNA for protein disulfide isomerase-related protein P5, complete cds.	2281	100
1658	AAW25154	Homo sapiens	Human disulphide epimerase like enzyme, EP52.	2281	100
1659	gi6694278	Homo sapiens	cell recognition molecule Caspr2 (CASPR2) mRNA, complete cds.	356	95
1659	gi13624214	Homo sapiens	contactin-associated protein 2 (CNTNAP2) mRNA, complete cds.	356	95
1659	gi1857708	Homo sapiens	contactin associated protein (Caspr) mRNA, complete cds.	140	37
1660	AAG02922	Homo sapiens	Human secreted protein, SEQ ID NO: 7003.	136	96
1660	gi34373	Homo sapiens	Human DNA for LINE-1 transposable element ORFI and II.	135	96
1660	gi7959889	Homo sapiens	PRO2221	127	88
1661	gi4588087	Homo sapiens	PTH-responsive osteosarcoma B1 protein (B1) mRNA, complete cds.	569	87
1661	AAG74841	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:5605.	569	87
1661	gi4588085	Homo sapiens	PTH-responsive osteosarcoma D1 protein (D1) mRNA, partial cds.	312	84
1662	gi4754907	Homo sapiens	histone deacetylase 4 mRNA, complete cds.	2090	94
1662	AAB49957	Homo sapiens	Human histone deacetylase HDAC-4.	2090	94
1662	gi14495171	Gallus gallus	histone deacetylase-4	1790	78
1663	AAB74704	Homo sapiens	Human membrane associated protein MEMAP-10.	183	100
1663	gi2621542	Methanothermobacter thermautotrophicus	conserved protein	83	70
1663	gi10440349	Homo sapiens	mRNA for FLJ00009 protein, partial cds.	82	35
1664	gi15159543	Agrobacterium tumefaciens	AGR_L_2143p	99	27
1664	gi5360174	Gallus gallus	NOTCH-1	98	31
1664	gi4960212	Bos taurus	cone-rod homeobox	85	27
1665	AAB32388	Homo sapiens	Human secreted protein sequence encoded by gene 18 SEQ ID NO:74.	359	100
1665	AAY91419	Homo sapiens	Human secreted protein sequence encoded by gene 6 SEQ ID NO:140.	83	36
1665	gi860970	Homo sapiens	H.sapiens mRNA for HP8 protein.	84	35
1666	gi15012095	Homo sapiens	Similar to protease inhibitor 3, skin-derived (SKALP), clone MGC:13613 IMAGE:4083155, mRNA, complete cds.	621	100
1666	gi28712	Homo sapiens	H.sapiens encoding skin-derived antileukoproteinase.	621	100
1666	gi219615	Homo sapiens	Human gene for elafin, complete cds.	621	100

Table 2A

211

SEQ ID	Hit ID	Species	Description	S score	% Identity
1667	gi6650233	Homo sapiens	zinc finger protein 74 (ZNF74) gene, exon 3, alternative splice products and complete cds.	259	58
1667	gi15081398	Homo sapiens	kruppel-like zinc finger protein (ZNF300) mRNA, complete cds.	246	73
1667	gi1769491	Homo sapiens	Human kruppel-related zinc finger protein (ZNF184) mRNA, partial cds.	246	64
1668	AAB38280	Homo sapiens	Human secreted protein sequence encoded by gene 20 SEQ ID NO:136.	142	62
1668	gi1196431	Homo sapiens	Human factor VIII gene L1 element insertion DNA.	131	58
1668	gi6562173	Homo sapiens	mRNA; cDNA DKFZp566H033 (from clone DKFZp566H033); partial cds.	147	60
1669	AAG03136	Homo sapiens	Human secreted protein, SEQ ID NO: 7217.	179	75
1669	AAG02563	Homo sapiens	Human secreted protein, SEQ ID NO: 6644.	77	60
1669	AAG73365	Homo sapiens	Human gene 20-encoded secreted protein HFCAA91, SEQ ID NO:136.	76	63
1670	gi12804499	Homo sapiens	ribonuclease 6 precursor, clone MGC:1360 IMAGE:2959583, mRNA, complete cds.	376	83
1670	gi12804759	Homo sapiens	ribonuclease 6 precursor, clone MGC:3554 IMAGE:2959583, mRNA, complete cds.	376	83
1670	gi5091495	Homo sapiens	ribonuclease 6 precursor, mRNA, complete cds.	376	83
1672	AAG63163	Homo sapiens	Amino acid sequence of carcinoembryonic antigen-like polypeptide.	2187	99
1672	AAR54714	Homo sapiens	Carcinoembryonic antigen CEA-(c).	463	34
1672	AAB43688	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1133.	466	31
1673	gi13097624	Homo sapiens	clone IMAGE:3608084, mRNA, partial cds.	760	89
1673	gi10438279	Homo sapiens	cDNA: FLJ22029 fis, clone HEP08661.	411	51
1673	AAB93267	Homo sapiens	Human protein sequence SEQ ID NO:12300.	379	47
1674	gi339776	Homo sapiens	Human transposon L1.2.	686	85
1674	gi5070621	Homo sapiens	retrotransposon L1 insertion in X-linked retinitis pigmentosa locus, complete sequence.	686	85
1674	gi5052950	Homo sapiens	LINE1 element inserted in B-globin gene intron 2.	684	85
1675	AAB56206	Homo sapiens	Human secreted protein sequence encoded by gene 130 SEQ ID NO:300.	44	43
1675	AAB56350	Homo sapiens	Human secreted protein sequence encoded by gene 130 SEQ ID NO:444.	52	39
1675	AAW33908	Homo sapiens	Peptide analogue of human insulin-	57	31

Table 2A

212

SEQ ID	Hit ID	Species	Description	S score	% Identity
			like growth factor-1 (IGF-1).		
1676	gi34234	Homo sapiens	H.sapiens mRNA for laminin-binding protein.	290	67
1676	gi13529269	Homo sapiens	laminin receptor 1 (67kD, ribosomal protein SA), clone MGC:12521 IMAGE:3997019, mRNA, complete cds.	289	67
1676	gi14250794	Homo sapiens	laminin receptor 1 (67kD, ribosomal protein SA), clone MGC:16750 IMAGE:4130936, mRNA, complete cds.	289	67
1677	gi475782	Homo sapiens	Human GS2 gene, exon 7 and complete cds.	1249	97
1677	gi458226	Homo sapiens	Human GS2 mRNA, complete cds.	1249	97
1677	AAG00737	Homo sapiens	Human secreted protein, SEQ ID NO: 4818.	531	94
1678	gi3089427	Homo sapiens	SSC6 rearranged T cell receptor beta chain (TCRBV17) gene, complete cds.	444	100
1678	gi3089433	Homo sapiens	SSC9 rearranged T cell receptor beta chain (TCRBV17) gene, complete cds.	444	100
1678	gi3002927	Homo sapiens	T cell receptor beta chain (TCRBV17S1-TCRBJ1S5) mRNA, complete cds.	444	100
1679	gi15929119	Homo sapiens	clone MGC:8834 IMAGE:3920437, mRNA, complete cds.	455	100
1679	gi7022159	Homo sapiens	cDNA FLJ10242 fis, clone HEMBB1000630.	455	100
1679	AAB92624	Homo sapiens	Human protein sequence SEQ ID NO:10919.	455	100
1680	gi10186503	Homo sapiens	sialic acid-specific acetylesterase II mRNA, complete cds, alternatively spliced.	817	100
1680	gi6808138	Homo sapiens	mRNA; cDNA DKFZp761A051 (from clone DKFZp761A051); partial cds.	817	100
1680	gi10242345	Homo sapiens	sialic acid-specific 9-O-acetylesterase I mRNA, complete cds.	753	100
1681	gi4768463	Homo sapiens	clone 118 T-cell receptor beta chain (TCRBV10S1P) mRNA, partial cds.	76	44
1681	gi4768574	Homo sapiens	clone 179 T-cell receptor beta chain (TCRBV10S1P) mRNA, partial cds.	71	42
1681	gi4768459	Homo sapiens	clone 115 T-cell receptor beta chain (TCRBV10S1P) mRNA, partial cds.	69	44
1682	gi4097459	Elephantulus edwardii	reverse transcriptase	68	48
1683	gi1220315	Homo sapiens	early placenta insulin-like peptide EPIL (INSL4) mRNA, complete cds.	349	100
1683	AAR89134	Homo sapiens	Human early placental insulin-like protein.	349	100

Table 2A

213

SEQ ID	Hit ID	Species	Description	S score	% Identity
1683	AAW17676	Homo sapiens	Human relaxin-related factor-2 (RRF-2).	349	100
1684	gi23365	Homo sapiens	Human mRNA for 17-beta-hydroxysteroid dehydrogenase (17-HSD) (EC 1.1.1.62).	800	83
1684	gi975895	Homo sapiens	Human 17-beta-hydroxysteroid dehydrogenase (EDH17B2) gene, complete cds.	800	83
1684	gi177127	Homo sapiens	Human 17-beta-hydroxysteroid dehydrogenase (EDH17B1 and EDH17B2) genes, complete coding regions and flanks.	800	83
1685	AAB18919	Homo sapiens	A novel polypeptide designated PRO4356.	1336	99
1685	AAB31206	Homo sapiens	Amino acid sequence of human polypeptide PRO4356.	1336	99
1685	gi5834584	Homo sapiens	mRNA encoding rat C4.4-like protein.	231	31
1686	gi1655963	Homo sapiens	Human transforming growth factor-beta type II receptor gene, exon 7 and complete cds.	1634	99
1686	gi339570	Homo sapiens	Human TGF-beta type II receptor mRNA, complete cds.	1634	99
1686	AAR36601	Homo sapiens	TGF-beta1 receptor type II (clone 3FF).	1634	99
1687	gi508260	Homo sapiens	Human type I vasoactive intestinal peptide receptor (V1RG) gene, exon 13 and complete cds.	390	76
1687	gi407462	Homo sapiens	Hsapiens HIVR mRNA for vasoactive intestinal peptide (VIP) receptor.	390	76
1687	gi292904	Homo sapiens	Human vasoactive intestial peptide receptor mRNA, complete cds.	390	76
1688	gi181268	Homo sapiens	Human c-yes-1 mRNA.	520	90
1688	AAY24421	Homo sapiens	Human yes1 protein.	520	90
1688	AAB84663	Homo sapiens	Amino acid sequence of human tyrosine kinase protein Yes.	520	90
1689	AAG02314	Homo sapiens	Human secreted protein, SEQ ID NO: 6395.	139	55
1689	gi13325174	Homo sapiens	clone MGC:10997 IMAGE:3638158, mRNA, complete cds.	104	70
1689	gi9652123	Mus musculus	disrupter of silencing SAS10	86	40
1690	gi13516467	Homo sapiens	HDNB1(homzygously deleted in neuroblastoma-1)/UFD2 mRNA, complete cds.	1217	89
1690	gi4104976	Homo sapiens	ubiquitin-fusion degradation protein 2 (UFD2) mRNA, complete cds.	1217	89
1690	gi14582754	Homo sapiens	ubiquitin-fusion degradation protein 2 mRNA, complete cds.	1217	89
1691	gi2463632	Homo sapiens	monocarboxylate transporter homologue MCT6 mRNA, complete cds.	326	96
1691	AAG73420	Homo sapiens	Human gene 21-encoded secreted protein HBWBR94, SEQ ID NO:192.	63	35

Table 2A

214

SEQ ID	Hit ID	Species	Description	S score	% Identity
1691	gi9246437	Staphylococcus aureus	fmtA-like protein	83	26
1692	AAB58175	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 513.	394	98
1692	gi14211500	Homo sapiens	secretory protein SEC8 mRNA, complete cds.	394	98
1692	gi14042555	Homo sapiens	cDNA FLJ14782 fis, clone NT2RP4000524, highly similar to Mus musculus Sec8 mRNA.	394	98
1693	gi3786312	Homo sapiens	mRNA for extracellular matrix protein, complete cds.	498	39
1693	gi13937865	Homo sapiens	lumican, clone MGC:12410 IMAGE:3950745, mRNA, complete cds.	312	29
1693	gi699577	Homo sapiens	Human lumican mRNA, complete cds.	312	29
1694	gi3002588	Mus musculus	Plenty of SH3s; POSH	219	93
1694	gi7230620	Rattus norvegicus	SH3 domain-containing adapter protein isoform SETA-1x23	130	34
1694	AAW34246	Homo sapiens	SH3 domain of human clone 53 protein.	114	50
1695	gi10645308	Leishmania major	L8453.1	151	27
1695	gi15419013	Toxoplasma gondii	subtilisin-like protein	147	30
1695	gi12018147	Chlamydomonas reinhardtii	vegetative cell wall protein gp1	143	30
1696	AAB43791	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1236.	353	98
1697	gi156368	Caenorhabditis elegans	metallothionein-2	56	39
1697	gi156381	Caenorhabditis elegans	metallothionein-like protein	56	39
1697	gi6782	Caenorhabditis elegans	metallothionein-II	56	39
1698	gi9858855	Homo sapiens	HPT protein (HPT) mRNA, complete cds; nuclear gene for mitochondrial product.	1318	85
1698	AAB29653	Homo sapiens	Human membrane-associated protein HUMAP-10.	1318	85
1698	AAB32389	Homo sapiens	Human secreted protein sequence encoded by gene 19 SEQ ID NO:75.	1318	85
1699	gi6841138	Homo sapiens	HSPC099 mRNA, partial cds.	275	100
1699	gi7022824	Homo sapiens	cDNA FLJ10656 fis, clone NT2RP2006038.	123	23
1699	AAB93037	Homo sapiens	Human protein sequence SEQ ID NO:11816.	123	23
1700	AAB36587	Homo sapiens	Human FLEXHT-9 protein sequence SEQ ID NO:9.	585	53
1700	gi7023841	Homo sapiens	cDNA FLJ11280 fis, clone PLACE1009459.	581	54
1700	AAB93652	Homo sapiens	Human protein sequence SEQ ID NO:13161.	581	54
1702	gi12330618	Human immunodeficienc	envelope glycoprotein	71	29

Table 2A

215

SEQ ID	Hit ID	Species	Description	S score	% Identity
		y virus type 1			
1703	AAR48975	Homo sapiens	Human beta1,6-N-acetylglucosaminyltransferase protein.	413	100
1703	gi870752	Homo sapiens	Human mRNA for N-acetylglucosaminyltransferase V, complete cds.	413	100
1703	gi4545222	Homo sapiens	alpha-1,3(6)-mannosylglycoprotein beta-1,6-N-acetyl-glucosaminyltransferase (MGAT5) mRNA, complete cds.	413	100
1704	gi12654535	Homo sapiens	HSPC025, clone MGC:735 IMAGE:3507964, mRNA, complete cds.	1251	81
1704	gi13960140	Homo sapiens	HSPC025, clone MGC:4223 IMAGE:2959747, mRNA, complete cds.	1251	81
1704	gi4679028	Homo sapiens	HSPC021	1251	81
1706	gi14250636	Homo sapiens	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor-like 2, clone MGC:3393 IMAGE:3623874, mRNA, complete cds.	2605	86
1706	gi6580428	Homo sapiens	partial NFKBIL2 gene for IkappaBR, exons 1-13.	2751	95
1706	gi746415	Homo sapiens	Human I kappa BR mRNA, complete cds.	1668	72
1707	AAB95830	Homo sapiens	Human protein sequence SEQ ID NO:18850.	219	72
1707	gi7959889	Homo sapiens	PRO2221	137	49
1707	gi2072969	Homo sapiens	Human L1 element L1.24 p40 gene, complete cds.	133	48
1708	gi5901529	Homo sapiens	C2H2 type Kruppel-like zinc finger protein splice variant b (ZNF236) mRNA, complete cds.	565	99
1708	gi5705917	human, MOLT 4 T-cells, mRNA, 798 nt). [Homo sapiens	HKR-T1=Kruppel-like zinc finger protein	223	45
1708	gi498736	Homo sapiens	H.sapiens HZF9 mRNA for zinc finger protein.	220	48
1709	gi1865716	Bos taurus	procollagen I N-proteinase	265	42
1709	AAW47029	Homo sapiens	Human N-proteinase (70 kDa short form).	254	43
1709	AAW47030	Homo sapiens	Bovine N-proteinase.	254	42
1710	gi12862392	Mus musculus	D86	1379	78
1710	gi763113	Homo sapiens	H.sapiens ERK3 mRNA.	872	92
1710	gi1294779	Homo sapiens	ERK3 protein kinase mRNA, complete cds.	872	92
1711	gi572680	Escherichia coli	beta ketoacyl-acyl carrier protein synthase	315	91
1711	gi664870	Escherichia coli	beta-ketoacyl-acyl carrier protein synthase II	315	91
1711	gi4062664	Escherichia coli	3-oxoacyl- synthase (EC 2.3.1.41) II	315	91
1712	AAR89952	Homo sapiens	Insulin-like growth factor binding protein-3.	726	95

Table 2A

216

SEQ ID	Hit ID	Species	Description	S score	% Identity
1712	gi12652547	Homo sapiens	insulin-like growth factor binding protein 3, clone MGC:2305 IMAGE:3506666, mRNA, complete cds.	722	95
1712	gi398164	Homo sapiens	H.sapiens mRNA for insulin-like growth factor binding protein-3.	722	95
1713	gi10435700	Homo sapiens	cDNA FLJ13633 fis, clone PLACE1011114, weakly similar to PROBABLE ATP-DEPENDENT RNA HELICASE HAS1.	710	97
1713	AAB99891	Homo sapiens	Human RNA helicase gene helicain B protein sequence SEQ ID NO:4.	710	97
1713	AAB99892	Homo sapiens	Human RNA helicase gene helicain C protein sequence SEQ ID NO:6.	710	97
1714	gi15384740	Homo sapiens	mRNA for Paralemmin-2 (PALM2 gene).	1652	100
1714	gi15384742	Homo sapiens	mRNA for Palm2-AKAP2 fusion protein (PALM2/AKAP2 gene).	1577	100
1714	gi14041780	Homo sapiens	mRNA for AKAP-2 protein.	415	60
1715	gi3600073	Homo sapiens	Human endogenous retrovirus K clone 7.1 polymerase mRNA, partial cds.	573	48
1715	gi3600067	Homo sapiens	Human endogenous retrovirus K clone 10.9 polymerase mRNA, partial cds.	572	48
1715	gi1780973	Human endogenous retrovirus K	pol protein	572	48
1716	AAU00025	Homo sapiens	Human activated T-lymphocyte associated sequence 4, ATLAS-4.	315	74
1716	gi5880909	Drosophila melanogaster	RNA-binding protein Smaug	87	29
1716	gi7380929	Drosophila melanogaster	smaug protein	87	29
1717	gi35825	Homo sapiens	Human mRNA for pregnancy zone protein.	3998	93
1717	gi579594	Homo sapiens	alpha 2-macroglobulin 690-740	2841	64
1717	AAR11749	Homo sapiens	Human alpha-2 macroglobulin bait region mutant.	2832	64
1718	gi4760578	Mus musculus	PB-Cadherin	1033	84
1718	gi1398906	Rattus norvegicus	long type PB-cadherin	1027	84
1718	gi1398912	Rattus norvegicus	short type PB-cadherin	1027	84
1719	gi339776	Homo sapiens	Human transposon L1.2.	312	62
1719	gi5070621	Homo sapiens	retrotransposon L1 insertion in X-linked retinitis pigmentosa locus, complete sequence.	312	62
1719	gi7959889	Homo sapiens	PRO2221	308	71
1720	AAE06588	Homo sapiens	Human protein having hydrophobic domain, HP10778.	687	100
1720	gi15072402	Raja erinacea	organic solute transporter alpha	357	45
1720	AAB38348	Homo sapiens	Human secreted protein encoded by gene 28 clone HLDOW79.	328	100

Table 2A

217

SEQ ID	Hit ID	Species	Description	S score	% Identity
1721	AAG81345	Homo sapiens	Human AFP protein sequence SEQ ID NO:208.	525	90
1721	AAB93797	Homo sapiens	Human protein sequence SEQ ID NO:13560.	525	90
1721	AAB44681	Homo sapiens	Human secreted protein sequence encoded by gene 41 SEQ ID NO:146.	199	100
1722	gi1809225	Homo sapiens	Human BAC clone RG161K23 from 7q21, complete sequence.	2183	83
1722	gi1698396	Homo sapiens	Human lanosterol 14-demethylase cytochrome P450 (CYP51) mRNA, complete cds.	2183	83
1722	gi871883	Homo sapiens	Human mRNA for lanosterol 14-demethylase, complete cds.	2183	83
1723	gi16182326	Drosophila melanogaster	GH01206p	108	29
1723	AAG77172	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:7938.	90	39
1723	gi3878064	Caenorhabditis elegans	H19J13.1	72	25
1724	AAY53040	Homo sapiens	Human secreted protein clone lkj320_1 protein sequence SEQ ID NO:86.	2480	100
1724	gi3510639	Rattus norvegicus	UDP-GalNAc:polypeptide N-acetylgalactosaminyltransferase T5	1351	59
1724	gi6688167	Homo sapiens	partial mRNA for GalNAc-T5 (GALNT5 gene).	1082	100
1725	gi14603092	Homo sapiens	Similar to CD47 antigen (Rh-related antigen, integrin-associated signal transducer), clone MGC:15298 IMAGE:4303534, mRNA, complete cds.	1329	97
1725	gi15277580	Homo sapiens	clone MGC:9240 IMAGE:3857911, mRNA, complete cds.	1329	97
1725	gi396705	Homo sapiens	H.sapiens integrin associated protein mRNA, complete CDS,.	1329	97
1726	gi1864011	Homo sapiens	mRNA for SHPS-1, complete cds.	858	98
1726	gi2052056	Homo sapiens	H.sapiens mRNA for SIRP-alpha1.	858	98
1726	gi6518913	Homo sapiens	Bit mRNA, complete cds.	858	98
1727	gi2707601	Homo sapiens	A4 differentiation-dependent protein (A4), triple LIM domain protein (LMO6), and synaptophysin (SYP) genes, complete cds; and calcium channel alpha-1 subunit (CACNA1F) gene, partial cds.	1656	100
1727	gi6180176	Homo sapiens	transcription factor IGHM enhancer 3, JM11 protein, JM4 protein, JM5 protein, T54 protein, JM10 protein, A4 differentiation-dependent protein, triple LIM domain protein 6, and synaptophysin genes, complete cds; and L-type calcium channel alpha-1 subunit gene, partial cds, complete sequence.	1656	100

Table 2A

218

SEQ ID	Hit ID	Species	Description	S score	% Identity
1727	gi899301	Homo sapiens	Human mRNA for synaptophysin (p38).	1602	100
1728	gi15590682	Homo sapiens	histone deacetylase 9a (HDAC9) mRNA, complete cds, alternatively spliced.	629	96
1728	gi12060992	Mus musculus	MEF2-interacting transcription repressor MITR	626	95
1728	gi13183017	Mus musculus	histone deacetylase-related protein	623	94
1729	gi5911884	Homo sapiens	mRNA; cDNA DKFZp434N126 (from clone DKFZp434N126).	1605	99
1729	gi15912209	Arabidopsis thaliana	At1g27520/T17H3_2	228	34
1729	gi14164377	Mus musculus	Type II membrane protein of ER--mouse gene similar to alpha-mannosidase	216	38
1730	gi21842	Triticum aestivum	proline-rich protein	403	33
1730	gi4138732	Zea mays	proline-rich protein	398	30
1730	gi11610622	Rattus norvegicus	GABA-A epsilon subunit splice variant	411	32
1731	gi189222	Homo sapiens	Human neurokinin-2 receptor (TAC2R) gene, exon 5.	1733	95
1731	AAW80135	Homo sapiens	Human recombinant neurokinin-2 (NK-2) receptor protein.	1733	95
1731	gi189135	Homo sapiens	Human neurokinin A receptor (NK-2R) mRNA, complete cds.	1732	95
1732	AAB75594	Homo sapiens	Human secreted protein sequence encoded by gene 37 SEQ ID NO:148.	678	99
1732	AAB75542	Homo sapiens	Human secreted protein sequence encoded by gene 37 SEQ ID NO:96.	294	100
1732	gi1864011	Homo sapiens	mRNA for SHPS-1, complete cds.	261	43
1733	AAY66648	Homo sapiens	Membrane-bound protein PRO1120.	294	93
1733	AAB65171	Homo sapiens	Human PRO1120 (UNQ559) protein sequence SEQ ID NO:84.	294	93
1733	AAE01440	Homo sapiens	Human gene 5 encoded secreted protein HE9QN39, SEQ ID NO:95.	294	93
1734	gi13161409	Mus musculus	family 4 cytochrome P450	539	78
1734	gi155947	Blaberus discoidalis	cytochrome P450	248	43
1734	gi3249041	Diploptera punctata	corpora allata cytochrome P450	233	42
1735	AAY71159	Homo sapiens	Human phosphodiesterase interacting protein, myomegalin.	682	45
1735	gi4761644	Rattus norvegicus	myomegalin	484	55
1735	gi53782	Mus musculus	profilin (AA 1-140)	414	74
1736	gi4959382	Homo sapiens	human endogenous retrovirus HERV-H19 pol protein (pol) gene, partial cds; env protein (env) gene, complete cds; and 3' LTR, complete sequence.	301	39
1736	gi8439396	HERV-H/env62	envelope protein	301	39

Table 2A

219

SEQ ID	Hit ID	Species	Description	S score	% Identity
1736	gi5442112	Simian retrovirus type 2	envelope glycoprotein	296	42
1737	AAY76177	Homo sapiens	Human secreted protein encoded by gene 54.	288	100
1738	gi3688630	Homo sapiens	hdkk-4 gene, exon3, exon4 and complete cds.	759	100
1738	gi6049610	Homo sapiens	dickkopf-4 (DKK-4) mRNA, complete cds.	759	100
1738	AAW73017	Homo sapiens	Human cysteine-rich secreted protein CRSP-2.	759	100
1739	gi10439926	Homo sapiens	cDNA: FLJ23293 fis, clone HEP10514.	1786	99
1739	gi4406632	Homo sapiens	clone 25221 mRNA sequence, complete cds.	1253	64
1739	gi10435296	Homo sapiens	cDNA FLJ13321 fis, clone OVARC1001703, weakly similar to Mus musculus ARL-6 interacting protein-2 (Aip-2) mRNA.	1084	62
1740	AAB49278	Homo sapiens	Protein encoded by zsig81 cDNA fragment.	755	94
1740	gi1335033	Homo sapiens	Human mRNA for collagen VI alpha-2 alternative C-terminal domain.	69	24
1740	AAY40063	Homo sapiens	Peptide sequence derived from a human secreted protein.	63	35
1741	gi14714807	Mus musculus	Similar to transporter-like protein	565	83
1741	AAG81264	Homo sapiens	Human AFP protein sequence SEQ ID NO:46.	657	100
1741	AAY66673	Homo sapiens	Membrane-bound protein PRO1115.	657	100
1742	gi14583077	Homo sapiens	PAS-kinase (PASK) mRNA, complete cds.	2227	99
1742	AAB65630	Homo sapiens	Novel protein kinase, SEQ ID NO: 156.	2223	99
1742	gi15487238	Mus musculus	PASKIN protein	1632	72
1743	gi13879899	Mycobacterium tuberculosis CDC1551	PPE family protein	118	31
1743	gi1334643	Xenopus laevis	APEG precursor protein	90	34
1743	gi184511	Homo sapiens	Human zinc-finger DNA-binding motifs (IA-1) mRNA, complete cds.	86	32
1744	gi5931718	Chlamydomonas reinhardtii	1-alpha dynein heavy chain	1874	62
1744	gi9409781	Chlamydomonas reinhardtii	1 beta dynein heavy chain	986	36
1744	gi514215	Chlamydomonas reinhardtii	dynein beta heavy chain	978	36
1745	AAY13392	Homo sapiens	Amino acid sequence of protein PRO328.	1168	57
1745	AAB01373	Homo sapiens	Neuron-associated protein.	1168	57
1745	AAY95343	Homo sapiens	Human PRO328 antitumour protein.	1168	57
1746	AAY99398	Homo sapiens	Human PRO1301 (UNQ667) amino acid sequence SEQ ID	677	94

Table 2A

220

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NO:212.		
1746	AAW88501	Homo sapiens	Human stomach carcinoma clone HP10415-encoded protein.	675	94
1746	AAB24255	Homo sapiens	Human cytochrome P450 (HUCYP) protein SEQ ID NO:1.	675	94
1747	AAG02314	Homo sapiens	Human secreted protein, SEQ ID NO: 6395.	78	66
1747	AAB45051	Homo sapiens	Human secreted protein encoded by gene 27.	60	30
1747	gi2585662	Human immunodeficiency virus type 1	envelope glycoprotein	58	38
1748	AAE03560	Homo sapiens	Human differentially expressed kidney cDNA 22360 encoded protein.	1142	88
1748	gi15637151	Beta vulgaris	glycine decarboxylase subunit P	62	36
1749	gi13506805	Homo sapiens	thymic stromal co-transporter mRNA, complete cds.	2309	100
1749	gi13506808	Mus musculus	thymic stromal co-transporter	1789	77
1749	AAE04906	Homo sapiens	Human transporter and ion channel-19 (TRICH-19) protein.	305	34
1750	gi10438815	Homo sapiens	cDNA: FLJ22427 fis, clone HRC09013.	4170	98
1750	AAB01381	Homo sapiens	Neuron-associated protein.	2964	95
1750	gi6650377	Mus musculus	pecanex 1	2288	73
1751	gi825663	Homo sapiens	H.sapiens GLAST1 gene for glilial glutamate transporter, exon1, exon 2.	411	100
1751	gi487339	Homo sapiens	Human excitatory amino acid transporter1 mRNA, complete cds.	411	100
1751	gi825504	Homo sapiens	Human mRNA for glutamate transporter, complete cds.	411	100
1752	gi1621607	Homo sapiens	Human neogenin mRNA, complete cds.	593	100
1752	gi641966	Gallus gallus	neogenin	591	98
1752	gi1785999	Rattus norvegicus	neogenin	586	97
1753	gi7020927	Homo sapiens	cDNA FLJ20674 fis, clone KAIA4450.	293	25
1753	AAP94014	Homo sapiens	Carcinoembryonic cell surface antigen.	254	27
1753	AAR60619	Homo sapiens	Carcinoembryonic antigen glycoprotein.	250	27
1754	AAY19507	Homo sapiens	Amino acid sequence of a human secreted protein.	343	91
1754	AAY19654	Homo sapiens	SEQ ID NO 372 from WO9922243.	85	100
1754	gi15075730	Sinorhizobium meliloti	HYPOTHETICAL TRANSMEMBRANE PROTEIN	65	30
1755	gi2506078	Mus musculus	tetracycline transporter-like protein	1120	99
1755	AAY29332	Homo sapiens	Human secreted protein clone pe584_2 protein sequence.	806	78
1755	AAB75295	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:114.	806	78
1756	AAE06608	Homo sapiens	Human protein having	1065	98

Table 2A
221

SEQ ID	Hit ID	Species	Description	S score	% Identity
			hydrophobic domain, HP10798.		
1756	AAB88469	Homo sapiens	Human membrane or secretory protein clone PSEC0027.	1065	98
1756	gi9664030	Drosophila melanogaster	aquaporin	115	22
1757	gi8925284	Homo sapiens	phosphatidylinositol polyphosphate 5-phosphatase type IV mRNA, complete cds.	2598	99
1757	gi9295353	Mus musculus	inositol polyphosphate 5-phosphatase	1993	74
1757	gi5360761	Rattus norvegicus	pharbin	1933	77
1758	gi395207	Bos taurus	potassium channel (BGK5)	757	83
1758	gi186669	Homo sapiens	Human potassium channel mRNA, complete cds.	754	83
1758	gi304652	Canis familiaris	delayed rectifier K+ channel	750	82
1759	gi7023003	Homo sapiens	cDNA FLJ10769 fis, clone NT2RP4000151.	647	85
1759	AAB93147	Homo sapiens	Human protein sequence SEQ ID NO:12057.	647	85
1759	AAB38451	Homo sapiens	Fragment of human secreted protein encoded by gene 23 clone HEGAK44.	484	84
1760	AAB87763	Homo sapiens	Human T2R33 amino acid sequence SEQ ID NO:56.	693	83
1760	AAB87780	Homo sapiens	Human T2R50 amino acid sequence SEQ ID NO:76.	671	82
1760	AAE03828	Homo sapiens	Human gene 11 encoded secreted protein HHAUQ28, SEQ ID NO: 74.	656	89
1761	gi13543624	Homo sapiens	uncharacterized hematopoietic stem/progenitor cells protein MDS029, clone MGC:14612 IMAGE:4051044, mRNA, complete cds.	514	87
1761	gi13937872	Homo sapiens	uncharacterized hematopoietic stem/progenitor cells protein MDS029, clone MGC:12437 IMAGE:3930701, mRNA, complete cds.	514	87
1761	gi14250122	Homo sapiens	uncharacterized hematopoietic stem/progenitor cells protein MDS029, clone MGC:14755 IMAGE:4283253, mRNA, complete cds.	514	87
1762	gi2739094	Homo sapiens	sodium/myo-inositol cotransporter (SLC5A3) gene, complete cds.	3621	100
1762	gi662843	Homo sapiens	Na+/myo-inositol cotransporter (SLC5A3) gene, complete cds.	3616	99
1762	gi1237437	Bos taurus	Na+/myo-inositol cotransporter	3486	95
1763	AAW84596	Homo sapiens	Amino acid sequence of the human Tango-79 protein.	1212	44
1763	gi15029689	Homo sapiens	clone MGC:17422 IMAGE:4214343, mRNA, complete cds.	1209	44
1763	AAB74705	Homo sapiens	Human membrane associated protein MEMAP-11.	1209	44

Table 2A
222

SEQ ID	Hit ID	Species	Description	S score	% Identity
1764	gi5923786	Homo sapiens	zinc metalloprotease ADAMTS6 (ADAMTS6) mRNA, complete cds.	614	43
1764	AAB72282	Homo sapiens	Human ADAMTS-6 amino acid sequence.	614	43
1764	gi12053709	Homo sapiens	mRNA for ADAMTS12.	1078	41
1765	gi1695682	Homo sapiens	mRNA for hepatic triglyceride lipase, complete cds.	152	64
1765	gi32498	Homo sapiens	Human mRNA for hepatic triglyceride lipase (HTGL).	152	64
1765	gi307129	Homo sapiens	Human hepatic lipase mRNA, complete cds.	152	64
1766	gi886282	Homo sapiens	glycoprotein Ib alpha (GPIb) gene, partial cds.	48	42
1766	AAB64868	Homo sapiens	Human secreted protein sequence encoded by gene 43 SEQ ID NO:154.	66	39
1766	gi10798865	Homo sapiens	zinc finger transcription factor BTEB2 gene, partial cds.	65	29
1767	gi8886005	Homo sapiens	lysophosphatidic acid acyltransferase-delta (LPAAT-delta) mRNA, complete cds.	324	90
1767	AAY96592	Homo sapiens	Human lysophosphatidic acid acyltransferase delta.	324	90
1767	AAY66665	Homo sapiens	Membrane-bound protein PRO1016.	324	90
1768	gi1160183	Homo sapiens	H.sapiens mRNA for metabotropic glutamate receptor type 4.	926	99
1768	gi1935039	Homo sapiens	Human metabotropic glutamate receptor 4 mRNA, complete cds.	926	99
1768	gi2298840	unidentified	HMGLUR4	926	99
1769	gi13279140	Homo sapiens	Similar to synaptotagmin 11, clone MGC:10881 IMAGE:3621175, mRNA, complete cds.	2210	99
1769	gi15489165	Homo sapiens	clone MGC:17226 IMAGE:4179089, mRNA, complete cds.	2210	99
1769	gi14042290	Homo sapiens	cDNA FLJ14634 fis, clone NT2RP2001081, moderately similar to SYNAPTOTAGMIN IV.	2201	98
1770	gi14249942	Homo sapiens	Similar to RIKEN cDNA 0610008P16 gene, clone MGC:15937 IMAGE:3537224, mRNA, complete cds.	239	78
1770	AAB56487	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1065.	239	78
1770	AAB73512	Homo sapiens	Human transferase HTFS-19, SEQ ID NO:19.	239	78
1771	gi7678873	Homo sapiens	mRNA for vascular cadherin-2, complete cds.	5369	99
1771	gi7407150	Homo sapiens	protocadherin 12 (PCDH12) mRNA, complete cds.	5369	99
1771	gi8164037	Homo sapiens	vascular endothelial cadherin 2 mRNA, complete cds.	5369	99

Table 2A

223

SEQ ID	Hit ID	Species	Description	S score	% Identity
1772	gi15082281	Homo sapiens	Similar to steroid dehydrogenase homolog, clone MGC:10252 IMAGE:3622879, mRNA, complete cds.	231	93
1772	gi15214803	Homo sapiens	Similar to steroid dehydrogenase homolog, clone MGC:13329 IMAGE:4281565, mRNA, complete cds.	231	93
1772	gi5531815	Homo sapiens	steroid dehydrogenase homolog	231	93
1773	AAG73650	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:4414.	265	58
1773	AAB94891	Homo sapiens	Human protein sequence SEQ ID NO:16231.	265	64
1773	gi1335205	Homo sapiens	Human DNA for LINE-1 transposable element ORFI and II.	273	48
1774	AAW71708	Homo sapiens	Human integral membrane protein TMP-1.	657	50
1774	gi3603459	Homo sapiens	tetraspan NET-5 mRNA, complete cds.	626	90
1774	AAB93885	Homo sapiens	Human protein sequence SEQ ID NO:13815.	626	90
1775	AAG71597	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1278.	981	99
1775	AAG71587	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1268.	746	75
1775	gi15293749	Homo sapiens	clone OR10R2 olfactory receptor gene, partial cds.	725	75
1776	AAB38011	Homo sapiens	Human secreted protein encoded by gene 3 clone HPJCX13.	252	85
1776	AAB64888	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:66.	252	85
1776	gi10432803	Homo sapiens	cDNA FLJ11531 fis, clone HEMBA1002661.	192	54
1777	gi182851	Homo sapiens	Human G0S2 protein gene, complete cds.	497	100
1777	gi182853	Homo sapiens	Human GOS2 gene, 5' flank and cds.	497	100
1777	gi1213013	Mus musculus	G0S2-like protein	377	77
1778	gi4027903	Homo sapiens	VAMP5 mRNA, complete cds.	473	100
1778	gi4679008	Homo sapiens	VAMP5-like protein	473	100
1778	AAW04181	Homo sapiens	Cellubrevin-2.	473	100
1779	gi5326919	Bos taurus	SCO-spondin	75	30
1779	gi3059229	Aspergillus oryzae	HAPB	74	35
1779	AAY84596	Homo sapiens	Fragment of human pre-pro-artemin polypeptide.	48	40
1780	gi1399321	Macaca mulatta	MHC class I antigen Mamu B*08	679	72
1780	gi1399319	Macaca mulatta	MHC class I antigen Mamu B*07	674	67
1780	gi8117799	Pan troglodytes	MHC class I antigen	677	70
1781	gi15929602	Homo sapiens	clone MGC:17861 IMAGE:3903313, mRNA, complete cds.	607	51
1781	gi15099953	Homo sapiens	diacylglycerol acyltransferase 2 mRNA, complete cds.	607	51
1781	AAY99421	Homo sapiens	Human PRO1433 (UNQ738) amino acid sequence SEQ ID	607	51

Table 2A
224

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NO:292.		
1782	gi2706518	Homo sapiens	PMP69 gene, exon 1 (and joined CDS).	1602	98
1782	gi2343157	Homo sapiens	peroxisomal membrane protein 69 (PMP69) mRNA, complete cds.	1602	98
1782	gi15215442	Homo sapiens	Similar to ATP-binding cassette, sub-family D (ALD), member 4, clone MGC:4125 IMAGE:2960427, mRNA, complete cds.	1594	98
1783	AAB35235	Homo sapiens	Human neurotransmitter transporter protein GC42.	3571	98
1783	gi546769	human, substantia nigra, mRNA, 2364 nt]. [Homo sapiens	glycine transporter type 1b	3557	98
1783	AAB35236	Homo sapiens	Human glycine transporter type 1c.	3557	98
1784	AAU00017	Homo sapiens	Human Plexin-D1.	3361	97
1784	gi13097621	Homo sapiens	clone IMAGE:3607457, mRNA, partial cds.	2470	100
1784	AAU00015	Homo sapiens	Human Plexin-B2.	1290	47
1785	gi619726	Homo sapiens	Human nuclear factor I (NFI) mRNA, clone AT1, complete cds.	953	99
1785	gi619730	Homo sapiens	Human nuclear factor I (NFI) mRNA, clone CT1, partial cds.	953	99
1785	gi305357	Mesocricetus auratus	nuclear factor I-like protein	953	99
1786	gi13810568	Homo sapiens	TLR5 mRNA for Toll-like receptor 5, complete cds.	4482	100
1786	gi3132526	Homo sapiens	Toll/interleukin-1 receptor-like protein 3 (TIL3) mRNA, complete cds.	4464	99
1786	gi7648687	Mus musculus	toll-like receptor 5	3235	72
1787	AAB56473	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1051.	474	100
1787	AAB60119	Homo sapiens	Human transport protein TPPT-39.	456	98
1787	gi11463949	Homo sapiens	hUGTrel7 mRNA for UDP-glucuronic acid, complete cds.	308	62
1788	gi4929765	Homo sapiens	CGI-148 protein mRNA, complete cds.	744	89
1788	gi7578785	Homo sapiens	NPD008 protein (NPD008) mRNA, complete cds.	744	89
1788	gi14250060	Homo sapiens	clone MGC:14598 IMAGE:4292664, mRNA, complete cds.	737	88
1789	gi1736785	Escherichia coli	Acriflavin resistance protein F (EnvD protein).	2265	100
1789	gi15980819	Yersinia pestis	AcrB/AcrD/AcrF family membrane protein	1854	79
1789	gi1736782	Escherichia coli	Acriflavin resistance protein F (EnvD protein).	1821	100
1790	gi15160166	Agrobacterium tumefaciens	AGR_L_3181p	549	59
1790	gi4981492	Thermotoga maritima	ribose ABC transporter, permease protein	316	40

Table 2A

225

SEQ ID	Hit ID	Species	Description	S score	% Identity
1790	gi12724646	Lactococcus lactis subsp. lactis	ribose ABC transporter permease protein	314	35
1791	gi41587	Escherichia coli	glycerol-3-phosphatase transporter (AA 1 - 452, glpT)	1073	100
1791	gi1799587	Escherichia coli	glycerol-3-phosphate transport protein	1073	100
1791	gi1788573	Escherichia coli K12	sn-glycerol-3-phosphate permease	1073	100
1792	gi148200	Escherichia coli	similar to arylsulfatases of Klebsiella pneumoniae and Homo sapiens	679	98
1792	gi13364207	Escherichia coli O157:H7	arylsulfatase	679	98
1792	gi1790233	Escherichia coli K12	arylsulfatase	679	98
1793	gi9657461	Vibrio cholerae	sulfate permease family protein	267	51
1793	gi2635979	Bacillus subtilis	similar to transporter	249	46
1793	gi14024597	Mesorhizobium loti	sulfate transporter family protein	231	45
1794	gi1799719	Escherichia coli	similar to	922	100
1794	gi15156677	Agrobacterium tumefaciens	AGR_C_2926p	452	50
1794	gi15074970	Sinorhizobium meliloti	HYPOTHETICAL TRANSMEMBRANE PROTEIN	414	47
1795	gi13325242	Homo sapiens	clone MGC:4033 IMAGE:2820092, mRNA, complete cds.	228	81
1795	gi1644366	Rattus norvegicus	ninjurin l	228	81
1795	gi3077901	Mus musculus	ninjurin	228	81
1796	gi15987491	Homo sapiens	tumor endothelial marker 5 precursor (TEM5) mRNA, complete cds.	5742	89
1796	AAB71863	Homo sapiens	Human h15571 GPCR.	5742	89
1796	gi15987499	Mus musculus	tumor endothelial marker 5 precursor	5030	79
1797	gi13938575	Homo sapiens	Similar to RIKEN cDNA 2610511E22 gene, clone MGC:4251 IMAGE:3028940, mRNA, complete cds.	1331	100
1797	AAY91598	Homo sapiens	Human secreted protein sequence encoded by gene 8 SEQ ID NO:271.	1322	100
1797	gi15029776	Mus musculus	RIKEN cDNA 2610511E22 gene	1317	98
1798	gi42989	Escherichia coli	SecY (PrlA) polypeptide (aa 1-443)	953	100
1798	gi606234	Escherichia coli	secY	953	100
1798	gi15978329	Yersinia pestis	preprotein translocase SecY subunit	941	97
1800	gi10435708	Homo sapiens	cDNA FLJ13639 fis, clone PLACE1011219, weakly similar to PROBABLE OXIDOREDUCTASE (EC 1.-.-.-).	289	84
1800	AAB94698	Homo sapiens	Human protein sequence SEQ ID NO:15680.	289	84

Table 2A
226

SEQ ID	Hit ID	Species	Description	S score	% Identity
1800	gi15292559	Drosophila melanogaster	SD07613p	101	67
1801	gi7415511	Homo sapiens	mRNA for peptide transporter 3, complete cds.	1281	89
1801	gi13810437	Rattus norvegicus	peptide histidine transporter 1 homolog rPHT2	1066	83
1801	AAY86224	Homo sapiens	Human secreted protein HDPWU34, SEQ ID NO:139.	1280	100
1802	gi387012	Homo sapiens	Human pepsinogen gene, exon 9.	615	97
1802	gi387013	Homo sapiens	Human pepsinogen A (15.0) gene, exon 9, clone cgHGP2.	615	97
1802	AAB66589	Homo sapiens	Human pepsin.	615	97
1803	gi15680159	Homo sapiens	Similar to claudin 2, clone MGC:20191 IMAGE:4645075, mRNA, complete cds.	1113	99
1803	gi10503980	Homo sapiens	clone SP82 claudin 2 mRNA, complete cds.	1113	99
1803	gi9755009	Homo sapiens	claudin-2 mRNA, complete cds.	1113	99
1804	gi476222	Homo sapiens	Human anion exchanger 3 brain isoform (bAE3) mRNA, complete cds.	317	74
1804	gi10953762	Mus musculus	anion exchanger 3 cardiac isoform	317	74
1804	gi309095	Mus musculus	AE3 protein	317	74
1805	AAB29632	Homo sapiens	Human pollinosis-associated gene 581-encoded protein, SEQ ID NO:12.	2518	55
1805	AAY70023	Homo sapiens	Human Protease and associated protein-17 (PPRG-17).	2068	58
1805	gi13529590	Mus musculus	Similar to ubiquitin specific protease 20	1924	56
1806	AAY99363	Homo sapiens	Human PRO1380 (UNQ717) amino acid sequence SEQ ID NO:79.	1773	98
1806	gi12656639	Homo sapiens	equilibrative nucleoside transporter 3 (ENT3) mRNA, complete cds.	1767	98
1806	AAY82285	Homo sapiens	Human ENT1 receptor SEQ ID NO:1.	1767	98
1807	AAG81410	Homo sapiens	Human AFP protein sequence SEQ ID NO:338.	155	27
1807	gi9623190	Mus musculus	sphingosine-1-phosphate phosphohydrolase	159	30
1807	gi15778670	Mus musculus	sphingosine-1-phosphate phosphatase	159	30
1808	gi15082281	Homo sapiens	Similar to steroid dehydrogenase homolog, clone MGC:10252 IMAGE:3622879, mRNA, complete cds.	231	93
1808	gi15214803	Homo sapiens	Similar to steroid dehydrogenase homolog, clone MGC:13329 IMAGE:4281565, mRNA, complete cds.	231	93
1808	gi5531815	Homo sapiens	steroid dehydrogenase homolog	231	93
1810	gi14270513	Homo sapiens	partial SLC22A3 gene for organic cation transporter 3, exon 1 and joined CDS.	775	99
1810	gi3581982	Homo sapiens	mRNA for extraneuronal	775	99

Table 2A
227

SEQ ID	Hit ID	Species	Description	S score	% Identity
			monoamine transporter.		
1810	gi4454795	Mus musculus	organic cation transporter 3	720	89
1811	gi1212965	Homo sapiens	H.sapiens mRNA for transmembrane protein rnp24.	266	91
1811	AAB74750	Homo sapiens	Human secreted protein sequence encoded by gene 18 SEQ ID NO:59.	266	91
1811	AAB74759	Homo sapiens	Human secreted protein sequence encoded by gene 18 SEQ ID NO:68.	266	91
1812	gi15082375	Homo sapiens	Similar to transmembrane 7 superfamily member 1 (upregulated in kidney), clone MGC:20076 IMAGE:4643216, mRNA, complete cds.	711	98
1812	gi13096836	Mus musculus	Similar to transmembrane 7 superfamily member 1 (upregulated in kidney)	690	95
1812	AAY69992	Homo sapiens	Human receptor-associated protein from Incyte clone 786873.	412	72
1813	gi12653811	Homo sapiens	zinc finger protein 219, clone MGC:1124 IMAGE:3347777, mRNA, complete cds.	500	38
1813	gi6899807	Homo sapiens	mRNA for zinc finger protein 219, complete cds.	496	38
1813	gi14549186	Mus musculus	zinc finger protein 219	490	36
1814	gi4324468	Homo sapiens	LAG1 protein (LAG1) gene, exon 7 and complete cds.	1385	93
1814	gi183051	Homo sapiens	Human growth/differentiation factor 1 (GDF-1) mRNA, complete cds.	1385	93
1814	AAR20230	Homo sapiens	hUOG-1.	1385	93
1815	gi6009515	Xenopus laevis	epidermis specific serine protease	338	41
1815	gi9757698	Xenopus laevis	embryonic serine protease-1	314	46
1815	gi13277969	Mus musculus	Similar to protease, serine, 8 (prostasin)	310	38
1816	gi41875	Escherichia coli	KefC potassium efflux system	706	100
1816	gi216472	Escherichia coli	kefc potassium efflux system	706	100
1816	gi1786232	Escherichia coli K12	K+ efflux antiporter, glutathione-regulated	706	100
1817	gi1054578	Escherichia coli	dioxygenase	1510	100
1817	gi1786565	Escherichia coli K12	taurine dioxygenase, 2-oxoglutarate-depcndent	1510	100
1817	gi13359879	Escherichia coli O157:H7	taurine dioxygenase	1506	99
1818	gi1279401	Escherichia coli	SapB protein	928	98
1818	gi1742115	Escherichia coli	Peptide transport system permease protein SapB.	928	98
1818	gi13361335	Escherichia coli O157:H7	homolog of Salmonella peptide transport permease protein	928	98
1819	gi9652147	Homo sapiens	transmembrane-type protein tyrosine phosphatase H (PTPRH) gene, exon 20 and complete cds.	4639	100
1819	gi475004	Homo sapiens	mRNA for protein tyrosine phosphatase precursor, complete cds.	4308	93

Table 2A

228

SEQ ID	Hit ID	Species	Description	S score	% Identity
1819	gi1321659	Rattus norvegicus	brain-enriched membrane-associated protein tyrosine phosphatase (BEM)-2	920	77
1820	gi7141125	Homo sapiens	tissue-type heart Ellis-van Creveld syndrome protein (EVC) mRNA, complete cds.	1277	100
1820	gi7141127	Homo sapiens	tissue-type brain Ellis-van Creveld syndrome protein (EVC) mRNA, complete cds.	1277	100
1820	gi7271903	Homo sapiens	DWF-1 mRNA, complete cds.	1271	99
1821	AAG71453	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1134.	568	98
1821	AAG72370	Homo sapiens	Human OR-like polypeptide query sequence, SEQ ID NO: 2051.	568	98
1821	AAE04556	Homo sapiens	Human G-protein coupled receptor-12 (GCREC-12) protein.	558	100
1822	gi10440040	Homo sapiens	cDNA: FLJ23375 fis, clone HEP16206.	757	98
1822	AAB95094	Homo sapiens	Human protein sequence SEQ ID NO:17042.	98	43
1822	gi6002197	Homo sapiens	H.sapiens NDUFV3 gene, exon 1.	78	34

Table 2B

229

SEQ ID	Hit ID	Species	Description	S score	% Identity
912	gi601918	Homo sapiens	glutathione S-transferase theta 2	1263	100
912	gi769703	Rattus norvegicus	glutathione S-transferase subunit Yrs	995	78
912	gi220757	Rattus norvegicus	glutathione S-transferase Yrs-Yrs	995	78
913	gi13872813	Homo sapiens	fibulin-6	4538	93
913	gi14575679	Homo sapiens	hemicentin	4533	93
913	ABB10492	Homo sapiens	Human cDNA SEQ ID NO: 800.	3343	90
914	AAU80378	Homo sapiens	Human DOPD-like protein NOV1.	465	98
914	AAR83048	Homo sapiens	Human macrophage migration inhibitory factor-3 (MIF-3).	450	94
914	gi2104581	Homo sapiens	phenylpyruvate tautomerase II	450	94
915	AAR83048	Homo sapiens	Human macrophage migration inhibitory factor-3 (MIF-3).	546	86
915	gi2104581	Homo sapiens	phenylpyruvate tautomerase II	546	86
915	gi3047378	Homo sapiens	D-dopachrome tautomerase	546	86
916	AAR89197	Homo sapiens	Human hepatocellular growth factor single chain precursor protein.	3466	91
916	gi219681	Homo sapiens	HGF activator precursor	3466	91
916	gi4190954	Homo sapiens	hepatocyte growth factor activator	3466	91
917	gi5441937	Homo sapiens	laminin beta precursor; similar to AAB92586 (PID:g2708707)	8964	100
917	AAY15457	Homo sapiens	Human laminin beta 4 protein.	8838	93
917	AAY15459	Homo sapiens	SEQ ID 5 of WO9919347.	6042	97
918	AAG65887	Homo sapiens	Amino acid sequence of GSK gene Id 14936.	5050	100
918	AAG65888	Homo sapiens	Amino acid sequence of GSK gene Id 14936.	4582	84
918	AAG68261	Homo sapiens	Human POLY8 protein sequence SEQ ID NO:16.	4543	83
919	ABB74955	Homo sapiens	Human lung tumour L524S variant protein sequence SEQ ID NO:166.	905	100
919	ABB74954	Homo sapiens	Human lung tumour L524S variant protein sequence SEQ ID NO:165.	905	100
919	AAE23751	Homo sapiens	Human parathyroid related peptide, PTHrP (1-173).	905	100
920	gi20269129	Homo sapiens	MEGF6	2584	95
920	AAE17919	Homo sapiens	Human gene 1 encoded serine protease, HMGBM65.	2468	99
920	AAY72091	Homo sapiens	Human serine protease #2 encoded by clone HMGBM65.	2468	99
921	ABB90774	Homo sapiens	Human Tumour Endothelial Marker polypeptide SEQ ID NO 281.	346	100
921	ABB90773	Homo sapiens	Human Tumour Endothelial Marker polypeptide SEQ ID NO 279.	346	100
921	ABB90772	Homo sapiens	Human Tumour Endothelial Marker polypeptide SEQ ID NO 277.	346	100
922	AAU97039	Homo sapiens	Human LP protein LP190.	2054	89
922	ABG30500	Homo sapiens	Human Carboxypeptidase A.	2054	89
922	AAB47565	Homo sapiens	Protease PRTS-7.	2054	89
923	AAM52240	Homo sapiens	Human MFAP4 SEQ ID NO 3.	1198	99
923	gi790817	Homo sapiens	microfibril-associated glycoprotein 4	1198	99
923	AAM52239	Homo sapiens	Human MAG4V SEQ ID NO 1.	1197	100
924	AAU81960	Homo sapiens	Human PRO536.	1648	100
924	AAB65173	Homo sapiens	Human PRO536 (UNQ337) protein	1648	100

Table 2B

230

SEQ ID	Hit ID	Species	Description	S score	% Identity
			sequence SEQ ID NO:97.		
924	AAB94830	Homo sapiens	Human protein sequence SEQ ID NO:15991.	1648	100
925	AAU10497	Homo sapiens	Human Apolipoprotein A-II, APOA2.	438	90
925	gi13528981	Homo sapiens	apolipoprotein A-II	438	90
925	gi21429231	Homo sapiens	apolipoprotein AII	438	90
926	AAY76156	Homo sapiens	Human secreted protein encoded by gene 33.	419	90
927	gi13097252	Homo sapiens	Similar to FK506 binding protein 2 (13 kDa)	648	91
927	gi337370	Homo sapiens	rapamycin- and FK506-binding protein	648	91
927	AAR93551	Homo sapiens	Human FKBP-13 immunophilin protein.	628	90
928	AAG73789	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:4553.	230	95
928	AAB53360	Homo sapiens	Human colon cancer antigen protein sequence SEQ ID NO:900.	230	95
930	gi17982522	Brucella melitensis	(S)-2-hydroxy-acid oxidase chain D	1151	49
930	gi17740510	Agrobacterium tumefaciens str. C58 (U. Washington)	FAD dependent oxidoreductase	1149	49
930	gi15157181	Agrobacterium tumefaciens str. C58 (Cereon)	AGR_C_3718p	1149	49
931	ABB89770	Homo sapiens	Human polypeptide SEQ ID NO 2146.	366	70
931	AAB75367	Homo sapiens	Human secreted protein #26.	366	70
931	AAU04353	Homo sapiens	Mammalian toxicological response marker protein #5.	366	70
932	ABB55723	Homo sapiens	Human polypeptide SEQ ID NO 52.	1107	99
932	AAU39014	Homo sapiens	Human secreted protein yc2_1.	1107	99
932	AAM94621	Homo sapiens	Human reproductive system related antigen SEQ ID NO: 3279.	203	67
933	gi16648246	Drosophila melanogaster	GH27263p	228	33
933	gi1711197	Xenopus laevis	Xfringe2	184	25
933	gi1679784	Xenopus laevis	radical fringe	184	26
934	AAY73383	Homo sapiens	HTRM clone 2280456 protein sequence.	1571	100
934	AAG75282	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6046.	619	99
934	AAM41045	Homo sapiens	Human polypeptide SEQ ID NO 5976.	89	29
935	AAG65916	Homo sapiens	Amino acid sequence of GSK gene Id 239881.	3041	99
935	gi15705411	Homo sapiens	peptidoglycan recognition protein L precursor	3041	99
935	AAG65915	Homo sapiens	Amino acid sequence of GSK gene Id 239881.	2892	99
936	AAU97218	Homo sapiens	Human G protein-coupled receptor, TGR25.	850	99

Table 2B

231

SEQ ID	Hit ID	Species	Description	S score	% Identity
936	AAE23415	Homo sapiens	Human G-protein coupled receptor-7 (GCREC-7).	850	99
936	ABB12463	Homo sapiens	Human bone marrow expressed protein SEQ ID NO: 302.	769	100
937	gi1711232	Homo sapiens	14-3-3 protein eta chain	1094	94
937	gi460779	Homo sapiens	14-3-3 eta subtype	1094	94
937	gi1477931	Homo sapiens	14.3.3 eta chain	1094	94
938	gi16118441	Oryctolagus cuniculus	S-100 calcium-binding protein beta subunit	479	100
938	gi12804681	Homo sapiens	S100 calcium-binding protein, beta (neural)	479	100
938	gi337730	Homo sapiens	S100 protein beta subunit	479	100
939	AAW75082	Homo sapiens	Human secreted protein encoded by gene 26 clone HTLEV12.	392	92
939	AAM95398	Homo sapiens	Human reproductive system related antigen SEQ ID NO: 4056.	71	50
939	AAU29184	Homo sapiens	Human PRO polypeptide sequence #161.	71	50
940	AAU29315	Homo sapiens	Human PRO polypeptide sequence #292.	3743	99
940	ABB75753	Homo sapiens	Human pancreas GP354.	3104	100
940	ABB75751	Homo sapiens	Human immunoglobulin superfamily member GP354.	3073	99
941	AAO21477	Homo sapiens	Human NgR2 protein sequence.	2133	100
941	AAO21482	Homo sapiens	Mature human NgR2 protein sequence.	2082	100
941	gi20987877	Mus musculus	similar to Nogo receptor	885	58
942	AAB25674	Homo sapiens	Human secreted protein sequence encoded by gene 10 SEQ ID NO:63.	768	98
942	AAB36613	Homo sapiens	Human FLEXHT-35 protein sequence SEQ ID NO:35.	238	90
942	gi14603247	Homo sapiens	Similar to RIKEN cDNA 5730409G15 gene	238	90
943	AAE22093	Homo sapiens	Human kidney specific renal cell carcinoma (KSRCC) protein.	851	98
943	AAY85678	Homo sapiens	Human kidney disease associated protein SEQ ID 10.	751	98
943	gi3127193	Rattus norvegicus	kidney-specific protein	686	75
944	ABP41513	Homo sapiens	Human ovarian antigen HCOOX52, SEQ ID NO:2645.	2558	100
944	gi1197499	Homo sapiens	C1 inhibitor	2527	100
944	AAW18207	Homo sapiens	Wild-type C1 inhibitor.	2524	99
945	gi17982052	Brucella melitensis	RIBOSOMAL PROTEIN L11 METHYLTRANSFERASE	241	36
945	gi15157854	Agrobacterium tumefaciens str. C58 (Cereon)	AGR_C_4799p	207	36
945	gi18145768	Clostridium perfringens str. 13	probable ribosomal protein L11 methyltransferase	118	37
946	AAB03948	Homo sapiens	Human mesenchymal stem cell polypeptide.	462	98
946	AAB64909	Homo sapiens	Human secreted protein sequence encoded by gene 28 SEQ ID NO:87.	165	63

Table 2B

232

SEQ ID	Hit ID	Species	Description	S score	% Identity
946	AAU01649	Homo sapiens	Human secreted protein immunogenic epitope encoded by gene #12.	165	63
947	AAE13809	Homo sapiens	Human lung tumour-specific protein SAL-82.	2906	99
947	AAB44467	Homo sapiens	Human lung tumour-specific antigen encoded by cDNA #103.	2906	99
947	gi13958036	Homo sapiens	RUFY1	2906	99
949	AAB88326	Homo sapiens	Human membrane or secretory protein clone PSEC0021.	541	74
949	AAB92475	Homo sapiens	Human protein sequence SEQ ID NO:10549.	541	74
949	AAE03226	Homo sapiens	Human gene 7 encoded secreted protein HNTDL21, SEQ ID NO:76.	541	74
950	ABP47877	Homo sapiens	Human polypeptide SEQ ID NO 307.	1303	100
950	ABP47870	Homo sapiens	Human polypeptide SEQ ID NO 300.	959	99
950	ABP48038	Homo sapiens	Human polypeptide SEQ ID NO 468.	835	98
951	AAU12382	Homo sapiens	Human PRO792 polypeptide sequence.	1138	87
951	AAB24416	Homo sapiens	Human PRO792 protein sequence SEQ ID NO:155.	1138	87
951	AAB24055	Homo sapiens	Human PRO792 protein sequence SEQ ID NO:31.	1138	87
952	gi7670746	Homo sapiens	UDP-glucose:glycoprotein glucosyltransferase 1 precursor	7974	98
952	gi13275621	synthetic construct	Rat RUGT	7317	91
952	gi7677176	Rattus norvegicus	UDP-glucose glycoprotein:glucosyltransferase precursor	7317	91
953	gi20810499	Homo sapiens	Similar to RIKEN cDNA 2900074C18 gene	1237	100
953	AAM42005	Homo sapiens	Human polypeptide SEQ ID NO 6936.	404	48
953	AAB64390	Homo sapiens	Amino acid sequence of human intracellular signalling molecule INTRA22.	402	50
954	gi18676660	Homo sapiens	FLJ00229 protein	2292	98
954	AAM40342	Homo sapiens	Human polypeptide SEQ ID NO 3487.	1454	60
954	AAM42128	Homo sapiens	Human polypeptide SEQ ID NO 7059.	765	60
955	gi21707216	Homo sapiens	LOC146556	2100	99
955	AAG81399	Homo sapiens	Human AFP protein sequence SEQ ID NO:316.	1910	100
955	AAB61421	Homo sapiens	Human TANGO 300 protein.	1904	99
956	gi21667020	Homo sapiens	mutant I beta-1,6-N-acetylglucosaminyltransferase C form	1637	99
956	gi21667011	Homo sapiens	I beta-1,6-N-acetylglucosaminyltransferase C form	1637	99
956	gi21667015	Homo sapiens	mutant I beta-1,6-N-acetylglucosaminyltransferase C form	1633	99

Table 2B

233

SEQ ID	Hit ID	Species	Description	S score	% Identity
957	gi2065165	Homo sapiens	collagen type XIV	773	93
957	AAG00322	Homo sapiens	Human secreted protein, SEQ ID NO: 4403.	482	98
957	gi288875	Gallus gallus	collagen XIV	461	63
958	AAG75509	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6273.	2482	94
958	AAB84606	Homo sapiens	Amino acid sequence of matrix metalloproteinase collagenase 1.	2482	94
958	AAE10415	Homo sapiens	Human matrix metalloprotinase-1 (MMP-1) protein.	2482	94
959	AAY25868	Homo sapiens	Human secreted protein fragment encoded from gene 57.	993	99
959	gi15145797	Sus scrofa	basic proline-rich protein	88	42
959	gi3413810	Mus musculus	Bassoon	84	31
960	AAG77807	Homo sapiens	Human HSIFL59 serine/threonine phosphatase protein sequence.	473	98
960	AAB58288	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 626.	473	98
960	AAY59744	Homo sapiens	Human normal ovarian tissue derived protein 21.	473	98
961	gi4019247	Ateline herpesvirus 3	thymidine kinase	71	46
962	gi9956936	Mus musculus	Su(var)3-9 homolog Suv39h2	1310	86
962	AAM78701	Homo sapiens	Human protein SEQ ID NO 1363.	1236	100
962	AAW05261	Homo sapiens	Chromatin regulator protein SUV39H.	814	55
963	AAG03840	Homo sapiens	Human secreted protein, SEQ ID NO: 7921.	439	80
963	gi1698653	Homo sapiens	NADPH:ubiquinone oxidoreductase subunit B13	439	80
963	gi12654023	Homo sapiens	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 5 (13kD, B13)	439	80
964	gi37347	Homo sapiens	TRG gamma chain (AA 1-340)	1657	94
964	gi339407	Homo sapiens	Ti antigen CD3-associated protein precursor	1627	93
964	gi37018	Homo sapiens	pre-gamma-chain (AA -14 to 309)	1436	87
965	AAE06606	Homo sapiens	Human protein having hydrophobic domain, HP10794.	566	96
965	AAM94615	Homo sapiens	Human reproductive system related antigen SEQ ID NO: 3273.	566	96
965	gi18490535	Mus musculus	RIKEN cDNA 2610528I11 gene	388	78
966	gi13654639	Bos taurus	D-glucuronyl C5 epimerase	3159	97
966	gi13442978	Mus musculus	D-glucuronyl C5-epimerase	3139	95
966	gi11935177	Mus musculus	heparin/heparan sulfate:glucuronic acid C5 epimerase	3134	95
967	AAG72204	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1885.	1167	77
967	AAG71875	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1556.	1138	74
967	AAG71816	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1497.	1102	72
968	AAB73679	Homo sapiens	Human oxidoreductase protein ORP-12.	1918	100
968	gi12655133	Homo sapiens	Similar to CGI-63 protein	1918	100
968	ABB89788	Homo sapiens	Human polypeptide SEQ ID NO	1907	99

Table 2B

SEQ ID	Hit ID	Species	Description	S score	% Identity
			2164.		
969	AAY28995	Homo sapiens	Tumour suppressor Del-27 protein sequence.	2309	59
969	AAY15344	Homo sapiens	Tumour suppressor protein del-27.	2309	59
969	gi6062874	Homo sapiens	candidate tumor suppressor protein DICE1	2309	59
970	gi387011	Homo sapiens	pyruvate dehydrogenase E1-alpha precursor	2187	99
970	gi35381	Homo sapiens	pyruvate dehydrogenase E1' subunit (AA 1 - 390)	2049	100
970	gi219982	Homo sapiens	alpha subunit	2049	100
971	gi2275569	Homo sapiens	TCRBV23S1	660	99
971	gi2104755	Homo sapiens	T cell receptor V-beta 23	660	99
971	gi495404	Pan troglodytes	T cell receptor beta chain	657	88
972	AAM95505	Homo sapiens	Human reproductive system related antigen SEQ ID NO: 4163.	1469	99
972	ABB96188	Homo sapiens	Human testicular antigen SEQ ID NO: 1572.	1469	99
972	AAB75360	Homo sapiens	Human secreted protein #19.	1272	100
973	AAE02937	Homo sapiens	Human TFRP protein.	3040	94
973	gi4996563	Homo sapiens	protein inhibitor of activatied STAT3	3040	94
973	gi12654633	Homo sapiens	protein inhibitor of activated STAT3	3040	94
974	gi15099957	Homo sapiens	diacylglycerol acyltransferase 2-like protein	855	93
974	gi15099955	Mus musculus	diacylglycerol acyltransferase 2-like protein	675	59
974	AAY94889	Homo sapiens	Human protein clone HP02485.	576	56
975	AAB92669	Homo sapiens	Human protein sequence SEQ ID NO:11033.	1432	100
975	ABG40833	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 30498.	399	98
975	AAM31319	Homo sapiens	Peptide #5356 encoded by probe for measuring placental gene expression.	399	98
976	gi4210474	Navel orange infectious mottling virus	polyprotein	71	21
977	gi1209685	Homo sapiens	salivary peroxidase	3754	96
977	gi163307	Bos taurus	lactoperoxidase	3166	80
977	gi11990122	Camelus dromedarius	peroxidase	3153	81
978	AAY01604	Homo sapiens	Amino acid scquence of the human defensin (Def-X) protein.	501	97
978	gi29735	Homo sapiens	corticostatin/defensin HP-4 precursor	214	46
978	AAR15222	Homo sapiens	Chronic myelogenous leukaemia-derived myeloid-related protein.	211	47
979	AAG81415	Homo sapiens	Human AFP protein sequence SEQ ID NO:348.	848	100
980	gi6633820	Arabidopsis thaliana	F1N19.20	79	26
980	gi6180001	Capra hircus	pregnancy-associated glycoprotein-8	73	30
980	gi20071290	Mus musculus	Similar to solute carrier family 26, member 7	71	25
981	gi4309953	Homo sapiens	T cell receptor gamma chain; similar to PID:g339160	951	95

Table 2B
235

SEQ ID	Hit ID	Species	Description	S score	% Identity
981	gi4309950	Homo sapiens	T cell receptor gamma chain; match to S08328 (PID:g106470)	917	88
981	ABG39493	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 29158.	679	77
982	gi1223888	synthetic construct	T cell receptor alpha chain	1066	79
982	gi338766	Homo sapiens	T-cell receptor precursor	987	73
982	gi3089419	Homo sapiens	T cell receptor alpha chain	974	71
983	ABB07518	Homo sapiens	Human drug metabolizing enzyme (DME) (ID: 7474438CD1).	418	29
983	AAB73512	Homo sapiens	Human transferase HTFS-19, SEQ ID NO:19.	409	30
983	gi14249942	Homo sapiens	Similar to RIKEN cDNA 0610008P16 gene	409	30
984	AAG71286	Homo sapiens	Human gene 9-encoded secreted protein HMSDL37, SEQ ID NO:135.	311	90
984	AAG71251	Homo sapiens	Human gene 9-encoded secreted protein HMSDL37, SEQ ID NO:99.	311	90
984	gi13096922	Mus musculus	Similar to nadrin	74	44
985	gi4519541	Mus musculus	thrombospondin type 1 domain	1296	88
985	ABP61846	Homo sapiens	Human polypeptide SEQ ID NO 200.	644	46
985	AAB99220	Homo sapiens	Human thrombospondin-30.	644	46
986	AAQ81417	Homo sapiens	Human AFP protein sequence SEQ ID NO:352.	287	100
987	ABB53264	Homo sapiens	Human polypeptide #4.	1904	100
987	gi18565270	Homo sapiens	Lib	1904	100
987	gi18565266	Rattus norvegicus	Lib	1621	83
988	AAB59022	Homo sapiens	Breast and ovarian cancer associated antigen protein sequence SEQ ID 730.	1385	100
988	gi14124958	Homo sapiens	nucleotide binding protein 2 (E.coli MinD like)	1385	100
988	gi13559170	Homo sapiens	C447E6.1 (nucleotide binding protein 1 (E.coli MinD like))	1380	100
989	AAU99292	Homo sapiens	Human chordin-like associated protein #1.	3916	100
989	AAU99293	Homo sapiens	Human chordin-like associated protein #2.	3073	81
989	AAE07119	Homo sapiens	Human gene 12 encoded secreted protein fragment, SEQ ID NO:136.	2411	98
990	AAB26105	Homo sapiens	Human DAN/Cerberus-related protein 6 (hDCR6) #1.	1693	87
990	AAE17089	Homo sapiens	Human osteolevin protein.	439	66
990	ABB07209	Homo sapiens	Human cloaked-2 polypeptide sequence.	439	66
991	gi9964099	Chlamydia trachomatis	inclusion membrane protein	74	35
992	gi21619848	Homo sapiens	Similar to immunoglobulin lambda joining 3	1002	89
992	gi4490538	Homo sapiens	lambda-immunoglobulin light chain	927	81
992	gi33746	Homo sapiens	immunoglobulin lambda light chain	914	80
993	AAG03466	Homo sapiens	Human secreted protein, SEQ ID NO: 7547.	97	100

Table 2B

236

SEQ ID	Hit ID	Species	Description	S score	% Identity
993	gi4063766	Aspergillus nidulans	chitinase	91	30
993	gi3617766	Anopheles gambiae	ICHIT protein	88	27
994	gi203246	Rattus norvegicus	cell adhesion-like molecule	1739	97
994	gi514374	Homo sapiens	opioid-binding cell adhesion molecule	1665	97
994	gi586	Bos taurus	put. pre-OPCAM (AA 1 - 345)	1640	93
995	AAB53088	Homo sapiens	Human angiogenesis-associated protein PRO328, SEQ ID NO:132.	2391	91
995	AAB80260	Homo sapiens	Human PRO328 protein.	2391	91
995	AAU12351	Homo sapiens	Human PRO328 polypeptide sequence.	2391	91
996	AAB85144	Homo sapiens	Human NKCR polypeptide (clone ID HMSOM53).	1205	83
996	AAY96226	Homo sapiens	Human high affinity Fc receptor, FcgammaRI.	354	41
996	gi31332	Homo sapiens	FcRI (AA 1-374)	354	41
997	ABB50835	Homo sapiens	Human secreted protein encoded by gene 80 SEQ ID NO:788.	74	36
998	ABP61434	Homo sapiens	Human NF-kB activating protein SEQ ID NO 21.	417	100
998	AAU07442	Homo sapiens	Human Wnt1 Upregulated protein 2 (WUP2).	417	100
998	AAU07441	Homo sapiens	Human Wnt1 Upregulated protein 1 (WUP1).	417	100
999	AAB08732	Homo sapiens	Amino acid sequence of a human OLD-35 polypeptide.	1671	85
999	gi20372922	Homo sapiens	polynucleotide phosphorylase-like protein	1671	85
999	AAB92684	Homo sapiens	Human protein sequence SEQ ID NO:11065.	1265	88
1000	gi199582	Mus musculus	B(2)-microglobulin	616	95
1000	gi50105	Mus musculus	beta2-microglobulin precursor (aa -20 to 99)	614	95
1000	gi199576	Mus musculus	B(2)-microglobulin	609	94
1001	AAB93335	Homo sapiens	Human protein sequence SEQ ID NO:12441.	672	99
1001	AAE21620	Homo sapiens	Human gene 7 encoded secreted protein, SEQ ID NO:92.	427	91
1001	AAE21604	Homo sapiens	Human gene 7 encoded secreted protein HTFOE85, SEQ ID NO:76.	402	90
1002	gi15559608	Homo sapiens	Similar to zinc finger protein 16 (KOX 9)	2079	100
1002	gi488555	Homo sapiens	zinc finger protein ZNF135	749	65
1002	AAB21006	Homo sapiens	Human nucleic acid-binding protein, NuABP-10.	747	54
1003	ABB79480	Homo sapiens	Human zinc finger protein 75.68.	1689	56
1003	gi1769491	Homo sapiens	kruppel-related zinc finger protein	1672	53
1003	AAM39130	Homo sapiens	Human polypeptide SEQ ID NO 2275.	1669	52
1005	AAB23641	Homo sapiens	Human secreted protein SEQ ID NO: 97.	609	100
1005	gi13129458	Oryza sativa	polyprotein	89	31

Table 2B

237

SEQ ID	Hit ID	Species	Description	S score	% Identity
		[Oryza sativa (japonica cultivar-group)]			
1005	gi7228457	Oryza sativa (japonica cultivar-group)	Similar to Sorghum bicolor Gypsy-Ty3 type retrotransposon RetroSor1, polyprotein. (AF098806)	87	29
1006	gi11493473	Homo sapiens	PRO2225	163	67
1007	AAM52305	Homo sapiens	Human zyxine.	2815	91
1007	AAG68191	Homo sapiens	Zyxin protein SEQ ID NO:107.	2815	91
1007	gi1545954	Homo sapiens	zyxin	2815	91
1008	AAM00955	Homo sapiens	Human bone marrow protein, SEQ ID NO: 431.	704	100
1008	gi18028488	Homo sapiens	cytosolic leucine-rich protein	631	99
1008	gi21666364	Bos taurus	leucine-rich protein	588	90
1009	AAE01420	Homo sapiens	Human secreted protein fragment, SEQ ID NO:144.	612	100
1009	gi17225457	Homo sapiens	autism-related protein 1	76	38
1009	AAM79126	Homo sapiens	Human protein SEQ ID NO 1788.	72	29
1010	gi16877231	Homo sapiens	Similar to RIKEN cDNA 2700019D07 gene	997	100
1010	AAM39593	Homo sapiens	Human polypeptide SEQ ID NO 2738.	94	100
1010	gi7302568	Drosophila melanogaster	CG15073-PA	91	19
1011	AAB43434	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:879.	413	78
1011	AAY07039	Homo sapiens	Breast cancer associated antigen precursor sequence.	413	78
1011	gi17932966	Homo sapiens	ribosomal protein P1	413	78
1012	AAW88457	Homo sapiens	Human lysophospholipase 1HLP.	1125	93
1012	ABP51416	Homo sapiens	Human MDDT SEQ ID NO 438.	843	100
1012	AAB75386	Homo sapiens	Human secreted protein #45.	825	100
1013	AAG81374	Homo sapiens	Human AFP protein sequence SEQ ID NO:266.	919	98
1013	gi20977549	Danio rerio	DT1P1A10-like protein	354	41
1013	gi665970	Saccharomyces cerevisiae	Ylr435wp	169	26
1014	gi20988991	Mus musculus	RIKEN cDNA 2810405K02 gene	920	88
1014	AAM93895	Homo sapiens	Human polypeptide, SEQ ID NO: 4031.	777	100
1014	ABB84903	Homo sapiens	Human PRO1198 protein sequence SEQ ID NO:174.	187	36
1015	AAB56791	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1369.	496	98
1015	gi19401678	Giardia intestinalis	endosomal AAA ATPase-like protein	76	38
1016	ABB44579	Homo sapiens	Human wound healing related polypeptide SEQ ID NO 36.	655	100
1016	AAB53427	Homo sapiens	Human colon cancer antigen protein sequence SEQ ID NO:967.	655	100
1016	gi2286227	Bos taurus	myocardial vascular inhibition factor	655	100
1017	AAB81188	Homo sapiens	Human zinc finger protein 52 (ZFP-52).	2389	98
1017	AAB95368	Homo sapiens	Human protein sequence SEQ ID NO:17684.	1712	100

Table 2B

238

SEQ ID	Hit ID	Species	Description	S score	% Identity
1017	ABP51456	Homo sapiens	Human MDDT SEQ ID NO 478.	1561	99
1018	gi6434346	Caenorhabditis elegans	Y105E8B.4	77	33
1019	AAG66831	Homo sapiens	Human DNA-dependent protein kinase 9.	443	98
1019	AAB90816	Homo sapiens	Human shear stress-response protein SEQ ID NO: 140.	365	100
1019	AAG66832	Homo sapiens	Human DNA-dependent protein kinase 9 N-terminal peptide.	79	100
1020	gi1377897	Homo sapiens	heart protein	1631	100
1020	gi7209525	Homo sapiens	DRAL/Slim3/FHL2	1625	99
1020	gi5825391	Mus musculus	four and half LIM domain protein 2	1524	91
1021	gi18139947	Homo sapiens	HLCDGP1	893	99
1021	gi7770259	Homo sapiens	PRO2975	794	100
1021	gi1237130	Escherichia coli	O antigen polymerase	85	26
1022	gi19263712	Homo sapiens	Similar to LOC146557	972	100
1022	AAG81348	Homo sapiens	Human AFP protein sequence SEQ ID NO:214.	528	62
1022	AAM88837	Homo sapiens	Human immune/haematopoietic antigen SEQ ID NO:16430.	179	80
1023	AAG01390	Homo sapiens	Human secreted protein, SEQ ID NO: 5471.	297	100
1023	gi456681	Pseudorabies virus	helicase	80	25
1023	AAM85692	Homo sapiens	Human immune/haematopoietic antigen SEQ ID NO:13285.	78	63
1024	gi4235144	Homo sapiens	BC39498_1	1423	62
1024	gi21265141	Homo sapiens	Similar to zinc finger protein 91 (HPF7, HTF10)	1404	60
1024	gi14348591	Homo sapiens	KRAB zinc finger protein	1403	58
1025	gi18490643	Homo sapiens	Similar to recombination activating gene 2	2849	99
1025	gi165680	Oryctolagus cuniculus	recombination activating protein	2666	91
1025	gi2576246	Mus musculus	RAG-2 protein	2594	88
1026	AAG75278	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6042.	1058	95
1026	gi600255	Gallus gallus	caldesmon	147	28
1026	gi211896	Gallus gallus	h-caldesmon	147	28
1027	AAY87341	Homo sapiens	Human signal peptide containing protein HSPP-118 SEQ ID NO:118.	699	99
1027	gi12311853	Leishmania major	possible surface antigen	77	31
1028	AAM92844	Homo sapiens	Human digestive system antigen SEQ ID NO: 2193.	86	38
1028	ABB11195	Homo sapiens	Human transmembrane protein homologue, SEQ ID NO:1565.	82	25
1028	ABG66815	Homo sapiens	Human prostate specific protein DEX0283_123.	75	60
1029	AAE02058	Homo sapiens	Human four disulfide core domain (FDCD)-containing protein.	587	41
1029	AAM79986	Homo sapiens	Human protein SEQ ID NO 3632.	579	41
1029	AAM79002	Homo sapiens	Human protein SEQ ID NO 1664.	579	41
1031	ABP42929	Homo sapiens	Human ovarian antigen HPDRS87, SEQ ID NO:4061.	820	93

Table 2B

239

SEQ ID	Hit ID	Species	Description	S score	% Identity
1031	ABP41129	Homo sapiens	Human ovarian antigen HE2RG21, SEQ ID NO:2261.	820	93
1031	AAU01195	Homo sapiens	Human cyclophilin A protein.	820	93
1032	AAE06643	Homo sapiens	Human G-protein coupled receptor (NGPCR) #2.	671	99
1032	AAE06642	Homo sapiens	Human G-protein coupled receptor (NGPCR) #1.	671	99
1032	gi7291589	Drosophila melanogaster	CG18679-PA	214	34
1033	AAG03055	Homo sapiens	Human secreted protein, SEQ ID NO: 7136.	269	100
1034	AAB38043	Homo sapiens	Fragment of human secreted protein encoded by gene 10 clone HWHGP71.	125	36
1034	gi5305335	Mycobacterium tuberculosis	proline-rich mucin homolog	105	33
1034	gi5917666	Zea mays	extensin-like protein	104	37
1035	AAM93942	Homo sapiens	Human polypeptide, SEQ ID NO: 4126.	3226	99
1035	ABB11422	Homo sapiens	Human Zn finger protein homologue, SEQ ID NO:1792.	2760	96
1035	gi6467206	Homo sapiens	gonadotropin inducible transcription repressor-4	2032	57
1036	AAB95007	Homo sapiens	Human protein sequence SEQ ID NO:16685.	518	86
1036	gi21410398	Mus musculus	RIKEN cDNA 2610034E13 gene	81	32
1036	gi45906	Proteus vulgaris	hlyC protein (AA 1-54)	72	45
1037	AAY27616	Homo sapiens	Human secreted protein encoded by gene No. 50.	562	99
1037	gi17902598	Rice black streaked dwarf virus	P6 protein	71	25
1038	gi16588681	Homo sapiens	anion transporter/exchanger-9	4295	95
1038	AAE21166	Homo sapiens	Human TRICH-10 protein.	3612	91
1038	gi13344999	Homo sapiens	solute carrier family 26 member 6	1298	37
1039	AAU12254	Homo sapiens	Human PRO4343 polypeptide sequence.	780	100
1039	AAM40835	Homo sapiens	Human polypeptide SEQ ID NO 5766.	780	100
1039	AAY76141	Homo sapiens	Human secreted protein encoded by gene 18.	780	100
1040	ABB89694	Homo sapiens	Human polypeptide SEQ ID NO 2070.	622	77
1040	AAY59672	Homo sapiens	Secreted protein 108-006-5-0-E6-FL.	622	77
1040	AAB94543	Homo sapiens	Human protein sequence SEQ ID NO:15290.	618	76
1041	AAY92710	Homo sapiens	Human membrane-associated protein Zsig24.	704	97
1041	ABB89722	Homo sapiens	Human polypeptide SEQ ID NO 2098.	566	99
1041	AAY87250	Homo sapiens	Human signal peptide containing protein HSPP-27 SEQ ID NO:27.	566	99
1042	AAU29316	Homo sapiens	Human PRO polypeptide sequence #293.	2932	99
1042	ABB05749	Homo sapiens	Human G protein-coupled receptor	1591	44

Table 2B

240

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NOV1a protein SEQ ID NO:2.		
1042	gi14572521	Homo sapiens	NEPH1	1519	51
1043	AAU00688	Homo sapiens	Human CD59 protein.	710	100
1043	AAW26318	Homo sapiens	Human CD59.	710	100
1043	AAR80240	Homo sapiens	Human membrane attack complex inhibition factor.	710	100
1044	gi17390957	Mus musculus	Similar to RIKEN cDNA 2010001E11 gene	1455	74
1044	gi6841140	Homo sapiens	HSPC100	498	100
1044	gi17985273	Brucella melitensis	GLUCOSE/GALACTOSE TRANSPORTER	124	22
1045	AAB56632	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1210.	3377	99
1045	gi13097708	Homo sapiens	ribophorin II	3152	100
1045	gi4730801	Homo sapiens	dJ343K2.2.1 (ribophorin II (isoform 1))	3152	100
1046	AAB70690	Homo sapiens	Human hDPP protein sequence SEQ ID NO:7.	598	100
1046	AAG89279	Homo sapiens	Human secreted protein, SEQ ID NO: 399.	598	100
1046	gi13182757	Homo sapiens	HTPAP	598	100
1047	gi2276448	Homo sapiens	MHC class I HLA-A	1794	93
1047	gi6815812	Homo sapiens	MHC class I antigen heavy chain	1794	93
1047	gi1245460	Homo sapiens	MHC class I HLA-A	1786	92
1048	ABP41629	Homo sapiens	Human ovarian antigen HOOJQ91, SEQ ID NO:2761.	675	90
1048	AAB95392	Homo sapiens	Human protein sequence SEQ ID NO:17743.	564	78
1048	AAM79768	Homo sapiens	Human protein SEQ ID NO 3414.	564	78
1049	gi14017773	Mus musculus	Cg10671-like	1517	96
1049	gi14017764	Mus musculus	CG10671-like	1517	96
1049	ABB89676	Homo sapiens	Human polypeptide SEQ ID NO 2052.	957	89
1050	AAG81431	Homo sapiens	Human AFP protein sequence SEQ ID NO:380.	503	97
1050	AAE23305	Homo sapiens	Human nectin-4 protein #4.	128	32
1050	gi19353148	Mus musculus	Similar to poliovirus receptor-related 4	127	27
1051	gi20072551	Mus musculus	RIKEN cDNA 4930511J11 gene	420	45
1051	gi17974542	Homo sapiens	voltage-dependent calcium channel gamma-8 subunit	147	25
1051	gi12836893	Gallus gallus	IPR328-like protein	147	29
1052	ABB84978	Homo sapiens	Human PRO4430 protein sequence SEQ ID NO:324.	436	70
1052	ABB95584	Homo sapiens	Human angiogenesis related protein PRO4430 SEQ ID NO: 324.	436	70
1052	AAU29273	Homo sapiens	Human PRO polypeptide sequence #250.	436	70
1053	AAB88325	Homo sapiens	Human membrane or secretory protein clone PSEC0020.	912	99
1053	AAB53257	Homo sapiens	Human colon cancer antigen protein sequence SEQ ID NO:797.	859	99
1053	AAY87264	Homo sapiens	Human signal peptide containing protein HSPP-41 SEQ ID NO:41.	315	63
1054	AAU12201	Homo sapiens	Human PRO1779 polypeptide	1819	54

Table 2B

241

SEQ ID	Hit ID	Species	Description	S score	% Identity
			sequence.		
1054	AAB25594	Homo sapiens	Protein encoded by human secreted protein gene #1.	1819	54
1054	gi1234787	Xenopus laevis	up-regulated by thyroid hormone in tadpoles; expressed specifically in the tail and only at metamorphosis; membrane bound or extracellular protein; C-terminal basic region	1799	53
1055	AAW55035	Homo sapiens	HPURR amino acid sequence.	2014	100
1055	AAW47066	Homo sapiens	Human brain P2X-1 receptor polypeptide.	2014	100
1055	gi4099139	Homo sapiens	P2X4 purinoreceptor	2014	100
1056	AAE03560	Homo sapiens	Human differentially expressed kidney cDNA 22360 encoded protein.	1255	85
1056	AAM42468	Homo sapiens	Human kidney related polypeptide SEQ ID NO 337.	145	90
1056	AAM99653	Homo sapiens	Human excretory related polypeptide SEQ ID NO 390.	145	90
1057	ABB53267	Homo sapiens	Human polypeptide #7.	3372	98
1057	AAO14449	Homo sapiens	Protein of human Zona Pellucida 1 (Zzp1).	3367	98
1057	gi972946	Mus musculus	ZP1 precursor	2216	67
1058	gi15779156	Homo sapiens	Similar to RIKEN cDNA 1810073N04 gene	1858	100
1058	gi13097045	Mus musculus	Similar to RIKEN cDNA 1810073N04 gene	1719	91
1058	AAM79693	Homo sapiens	Human protein SEQ ID NO 3339.	1138	100
1059	AAM79993	Homo sapiens	Human protein SEQ ID NO 3639.	1736	89
1059	AAM79009	Homo sapiens	Human protein SEQ ID NO 1671.	1736	89
1059	ABB12000	Homo sapiens	Human prostaglandin DP receptor homologue, SEQ ID NO:2370.	1736	89
1060	AAU79946	Homo sapiens	Human transporter protein sequence.	2907	99
1060	AAE21181	Homo sapiens	Human TRICH-25 protein.	2672	91
1060	gi2811122	Xenopus laevis	NaDC-2	1742	54
1061	AAM79483	Homo sapiens	Human protein SEQ ID NO 3129.	1698	88
1061	AAM78499	Homo sapiens	Human protein SEQ ID NO 1161.	1698	88
1061	ABB11938	Homo sapiens	Human cystinosin homologue, SEQ ID NO:2308.	1698	88
1062	gi12656590	Danio rerio	P2x purinoceptor subunit 4	72	40
1063	AAG68335	Homo sapiens	Human CSP2 protein SEQ ID NO:4.	1354	99
1063	gi19525540	Homo sapiens	lymphocyte effector toxicity activation ligand	1330	98
1063	AAY36071	Homo sapiens	Extended human secreted protein sequence, SEQ ID NO. 456.	1252	92
1064	gi15277509	Homo sapiens	Similar to transmembrane 7 superfamily member 2	1548	97
1064	ABP41089	Homo sapiens	Human ovarian antigen HSLGG58, SEQ ID NO:2221.	1501	100
1064	gi18138238	Bos taurus	C-14 sterol reductase	1376	87
1065	AAM93346	Homo sapiens	Human polypeptide, SEQ ID NO: 2891.	5017	98
1065	AAM93761	Homo sapiens	Human polypeptide, SEQ ID NO: 3754.	4620	99
1065	AAB92756	Homo sapiens	Human protein sequence SEQ ID	2856	99

Table 2B

242

SEQ ID	Hit ID	Species	Description	S score	% Identity
			NO:11216.		
1066	AAE23544	Homo sapiens	Human FAIL protein.	1730	99
1066	AAE23554	Homo sapiens	Human FAIL protein #3.	1728	99
1066	AAE23556	Homo sapiens	Human FAIL protein #5.	1726	99
1067	gi18480772	Mus musculus	olfactory receptor MOR101-2	1267	82
1067	gi18479346	Mus musculus	olfactory receptor MOR101-1	1193	79
1067	AAG72119	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1800.	1043	81
1068	ABB89454	Homo sapiens	Human polypeptide SEQ ID NO 1830.	530	95
1068	ABP41764	Homo sapiens	Human ovarian antigen HE6CR19, SEQ ID NO:2896.	530	95
1068	AAU04352	Homo sapiens	Mammalian toxicological response marker protein #4.	530	95
1069	AAY33300	Homo sapiens	Human hALK-2 clone HP53 protein.	1572	100
1069	AAR85206	Homo sapiens	Human ALK-2.	1572	100
1069	gi1381584	Bos taurus	activin receptor type I	1572	100
1070	gi16359163	Homo sapiens	Similar to RIKEN cDNA 2310014B08 gene	1332	94
1070	gi18043464	Mus musculus	RIKEN cDNA 2310014B08 gene	1226	77
1070	AAB64401	Homo sapiens	Amino acid sequence of human intracellular signalling molecule INTRA33.	212	35
1071	AAW60043	Homo sapiens	Human MHC class I chain-relatcd gene A (MICA) polypetide.	1894	93
1071	gi1405893	Homo sapiens	MHC class I chain-related protein A	1894	93
1071	gi16877353	Homo sapiens	MHC class I polypeptide-related sequence A	1838	90
1072	gi15292437	Drosophila melanogaster	LP10272p	439	39
1072	AAB80378	Homo sapiens	Secreted protein encoded by gene #8.	210	28
1072	AAY87336	Homo sapiens	Human signal peptide containing protein HSPP-113 SEQ ID NO:113.	210	28
1073	AAB58289	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 627.	2303	86
1073	ABB55767	Homo sapiens	Human polypeptide SEQ ID NO 140.	2163	86
1073	AAU39058	Homo sapiens	Human secreted protein pe584_2.	2163	86
1074	AAB58289	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 627.	2303	86
1074	ABB55767	Homo sapiens	Human polypeptide SEQ ID NO 140.	2163	86
1074	AAU39058	Homo sapiens	Human secreted protein pe584_2.	2163	86
1075	AAM93703	Homo sapiens	Human polypeptide, SEQ ID NO: 3632.	1061	93
1075	AAE04780	Homo sapiens	Human vesicle trafficking protein-23 (VETRP-23) protein.	864	100
1075	ABB08160	Homo sapiens	Human cytoskeleton-associated protein (CSAP)-4 (ID: 7472724CD1).	758	87
1076	ABB06255	Homo sapiens	Human G protein-coupled receptor TGR17-6 protein SEQ ID NO:15.	1511	100
1076	ABB06254	Homo sapiens	Human G protein-coupled receptor TGR17-5 protein SEQ ID NO:13.	1511	100
1076	ABB06252	Homo sapiens	Human G protein-coupled receptor TGR17-3 protein SEQ ID NO:7.	1511	100
1077	AAE16786	Homo sapiens	Human transporter and ion channel-	2679	99

Table 2B

243

SEQ ID	Hit ID	Species	Description	S score	% Identity
			23 (TRICH-23) protein.		
1077	ABB08218	Homo sapiens	Human membrane transporter protein 57256.	1759	68
1077	AAM38697	Homo sapiens	Human polypeptide SEQ ID NO 1842.	1249	53
1078	AAB85029	Homo sapiens	Protein encoded by BAP28 cDNA consisting of exons 1 to 45.	3444	81
1078	AAW54099	Homo sapiens	Homo sapiens BAP28 sequence.	2219	88
1078	AAB92729	Homo sapiens	Human protein sequence SEQ ID NO:11159.	1588	92
1079	ABB07526	Homo sapiens	Human drug metabolizing enzyme (DME) (ID: 1962105CD1).	2580	99
1079	AAM93720	Homo sapiens	Human polypeptide, SEQ ID NO: 3669.	2331	92
1079	gi57806	Rattus sp.	gamma-glutamyltranspeptidase (AA 1-568)	236	28
1080	AAM78536	Homo sapiens	Human protein SEQ ID NO 1198.	6839	100
1080	AAM79520	Homo sapiens	Human protein SEQ ID NO 3166.	6820	99
1080	ABG40303	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 29968.	2092	100
1081	gi20809440	Homo sapiens	sterol O-acyltransferase (acyl-Coenzyme A: cholesterol acyltransferase) 1	1783	65
1081	gi4878022	Homo sapiens	acyl-coenzyme A: cholesterol acyltransferase	1779	65
1081	AAW38416	Homo sapiens	Human acyl-cocnzyme A:cholesterol acyltransferase I.	1774	65
1082	gi22002433	Homo sapiens	p150 target of rapamycin (TOR)-scaffold protein containing WD-repeats	7014	100
1082	gi21979456	Homo sapiens	raptor	7014	100
1082	gi22002435	Mus musculus	p150 target of rapamycin (TOR)-scaffold protein containing WD-repeats	6819	96
1083	AAY33301	Homo sapiens	Human hALK-3 clone ONF5 protein.	2647	89
1083	AAR85207	Homo sapiens	Human ALK-3.	2647	89
1083	AAR55368	Homo sapiens	Human Activin receptor-like kinase 3 (hALK-3).	2647	89
1084	AAY33301	Homo sapiens	Human hALK-3 clone ONF5 protein.	1829	92
1084	AAR85207	Homo sapiens	Human ALK-3.	1829	92
1084	AAR55368	Homo sapiens	Human Activin receptor-like kinase 3 (hALK-3).	1829	92
1085	AAW90873	Homo sapiens	Human brain-specific dysferlin protein.	1329	53
1085	AAW90868	Homo sapiens	Human dysferlin protein.	1329	53
1085	AAY82643	Homo sapiens	Human dysferlin protein sequence SEQ ID NO:2.	1329	53
1086	gi19343765	Mus musculus	Similar to dysferlin	1860	47
1086	ABB89615	Homo sapiens	Human polypeptide SEQ ID NO 1991.	1853	47
1086	gi6731235	Homo sapiens	myoferlin	1853	47
1087	AAY92321	Homo sapiens	Human alpha-2-delta-D calcium channel subunit.	5881	99
1087	AAB62262	Homo sapiens	Human calcium channel alpha2delta	5742	99

Table 2B

244

SEQ ID	Hit ID	Species	Description	S score	% Identity
			subunit.		
1087	AAU01038	Homo sapiens	Human secreted soluble alpha2delta calcium channel subunit #18 protein.	5742	99
1088	gi18676422	Homo sapiens	FLJ00088 protein	3492	96
1088	ABP51380	Homo sapiens	Human MDDT SEQ ID NO 402.	2083	99
1088	gi2104689	Mus musculus	alpha glucosidase II, alpha subunit	1987	53
1089	AAY01143	Homo sapiens	Secreted protein encoded by gene 9 clone HSIDY06.	238	100
1090	AAY81261	Homo sapiens	Human DNA structure-specific recognition protein 1 (SSRP1).	3683	100
1090	AAW39212	Homo sapiens	Human SSRP1 protein.	3683	100
1090	AAR38744	Homo sapiens	Human SSRP.	3683	100
1091	gi177814	Homo sapiens	alpha-1-antitrypsin-related protein	1922	90
1091	gi15990507	Homo sapiens	Similar to serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1	1408	66
1091	AAY26925	Homo sapiens	Human alpha1-anti-trypsin type M1 protein.	1407	66
1092	gi16877139	Homo sapiens	Similar to RIKEN cDNA 1300019N10 gene	2273	100
1092	AAB56819	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1397.	1054	100
1092	AAM95577	Homo sapiens	Human reproductive system related antigen SEQ ID NO: 4235.	627	91
1093	gi18605512	Homo sapiens	Similar to CAP-binding protein complex interacting protein 2	1523	100
1093	AAO06814	Homo sapiens	Human polypeptide SEQ ID NO 20706.	1314	100
1093	AAY57946	Homo sapiens	Human transmembrane protein HTMPN-70.	1128	100
1094	AAM93603	Homo sapiens	Human polypeptide, SEQ ID NO: 3418.	2973	99
1094	gi19571657	Caenorhabditis elegans	similar to Yeast YEH4 like protein	964	41
1094	ABB89291	Homo sapiens	Human polypeptide SEQ ID NO 1667.	590	85
1095	gi4959568	Homo sapiens	nuclear pore complex interacting protein NPIP	1650	94
1095	AAO17206	Homo sapiens	Human secreted protein SEQ ID NO: 105.	1336	79
1095	ABB90262	Homo sapiens	Human polypeptide SEQ ID NO 2638.	872	69
1096	gi18031730	Homo sapiens	GK006	1405	98
1096	AAB92609	Homo sapiens	Human protein sequence SEQ ID NO:10874.	1074	99
1096	AAM40309	Homo sapiens	Human polypeptide SEQ ID NO 3454.	1074	99
1097	AAG03767	Homo sapiens	Human secreted protein, SEQ ID NO: 7848.	612	90
1097	AAB43694	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1139.	612	90
1097	gi285910	Homo sapiens	ATP synthase subunit c precursor	612	90
1098	gi897827	Homo sapiens	iron-responsive element-binding protein/iron regulatory protein 2	4968	99

Table 2B

245

SEQ ID	Hit ID	Species	Description	S score	% Identity
1098	AAE19851	Homo sapiens	Human wild-type IRP-2 protein.	4909	99
1098	gi897581	Homo sapiens	iron-regulatory protein 2	4909	99
1099	gi3551150	Canine herpesvirus	immediate-early protein	77	28
1099	gi437051	Acipenser transmontanus	vitellogenin	76	23
1099	gi21539886	Arabidopsis thaliana	transcription activator	75	26
1100	AAM84273	Homo sapiens	Human immune/haematopoietic antigen SEQ ID NO:11866.	328	92
1100	gi3551150	Canine herpesvirus	immediate-early protein	77	28
1100	gi535260	Plasmodium reichenowi	STARP antigen	76	21
1101	gi3551150	Canine herpesvirus	immediate-early protein	77	28
1101	gi437051	Acipenser transmontanus	vitellogenin	76	23
1101	gi535260	Plasmodium reichenowi	STARP antigen	75	21
1102	AAU12296	Homo sapiens	Human PRO7171 polypeptide sequence.	168	67
1102	ABB85001	Homo sapiens	Human PRO28631 protein sequence SEQ ID NO:370.	90	40
1102	ABB95607	Homo sapiens	Human angiogenesis related protein PRO28631 SEQ ID NO: 370.	90	40
1103	gi11558264	Homo sapiens	sphingosine-1-phosphatase	2032	89
1103	gi13447199	Homo sapiens	sphingosine-1-phosphate phosphatase	1994	87
1103	gi15778670	Mus musculus	sphingosine-1-phosphate phosphatase	1721	76
1104	ABB72215	Homo sapiens	Human protein isolated from skin cells SEQ ID NO: 331.	1544	100
1104	ABB72150	Homo sapiens	Human protein isolated from skin cells SEQ ID NO: 189.	1544	100
1104	ABB84843	Homo sapiens	Human PRO301 protein sequence SEQ ID NO:54.	1544	100
1105	AAG03757	Homo sapiens	Human secreted protein, SEQ ID NO: 7838.	506	100
1105	gi178836	Homo sapiens	apolipoprotein C-II	506	100
1105	gi757915	Homo sapiens	apoCII protein	506	100
1106	AAU97773	Homo sapiens	Human Fortilin polypeptide.	794	97
1106	AAR55698	Homo sapiens	Tumor protein p21.	794	97
1106	gi18482460	Sus scrofa	translationally controlled tumor protein	794	97
1107	gi12082725	Mus musculus	B cell phosphoinositide 3-kinase adaptor	3519	84
1107	gi12082723	Gallus gallus	B cell phosphoinositide 3-kinase adaptor	2806	69
1107	gi20987486	Homo sapiens	similar to B cell phosphoinositide 3-kinase adaptor	1829	97
1108	gi21708117	Homo sapiens	similar to hepatocellular carcinoma-associated antigen HCA557b	318	37
1108	gi18252514	Homo sapiens	hepatocellular carcinoma-associated antigen HCA557b	318	37

Table 2B

246

SEQ ID	Hit ID	Species	Description	S score	% Identity
1108	gi20071260	Mus musculus	RIKEN cDNA 2310038H17 gene	306	37
1109	gi15076511	Homo sapiens	nonmuscle myosin light chain 2	881	99
1109	gi13436446	Homo sapiens	myosin regulatory light chain	881	99
1109	gi22137716	Mus musculus	myosin regulatory light chain	881	99
1110	gi17391357	Homo sapiens	FXYD domain-containing ion transport regulator 7	390	96
1110	gi19354238	Mus musculus	FXYD domain-containing ion transport regulator 1	153	45
1110	gi4206711	Mus musculus	phospholemman precursor	153	45
1111	AAM49040	Homo sapiens	Human testicular development-specific protein 10 (NYD-SP10).	1486	85
1111	gi13272522	Homo sapiens	transcription factor NYD-sp10	1486	85
1111	gi21040409	Homo sapiens	regulatory factor X, 4 (influences HLA class II expression)	1486	85
1112	gi20269720	Homo sapiens	neuropilin and tolloid like-1	1894	99
1112	gi20269724	Mus musculus	neuropilin and tolloid like-1	1839	96
1112	ABB55774	Homo sapiens	Human polypeptide SEQ ID NO 154.	1057	58
1113	AAB61150	Homo sapiens	Human NOV19 protein.	758	98
1113	AAB61149	Homo sapiens	Human NOV18 protein.	758	98
1113	AAY33297	Homo sapiens	Human membrane spanning protein MSP-4.	758	98
1114	ABB90021	Homo sapiens	Human polypeptide SEQ ID NO 2397.	476	89
1114	ABB11874	Homo sapiens	Human secreted protein homologue, SEQ ID NO:2244.	476	89
1114	AAY94914	Homo sapiens	Human secreted protein clone pw337_6 protein sequence SEQ ID NO:34.	476	89
1115	AAG72407	Homo sapiens	Human OR-like polypeptide query sequence, SEQ ID NO: 2088.	1281	100
1115	AAG72267	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1948.	1281	100
1115	gi21928991	Homo sapiens	seven transmembrane helix receptor	1274	99
1116	AAU80496	Homo sapiens	Human G-coupled receptor (GCREC) protein, Seq ID No 4.	1905	98
1116	ABP51568	Homo sapiens	Human G protein coupled receptor SEQ ID NO:18.	1543	98
1116	AAU85147	Homo sapiens	G-coupled olfactory receptor #8.	1538	100
1117	gi5802817	Homo sapiens	envelope protein	479	77
1117	gi3150438	Human endogenous retrovirus K	pol-env	466	77
1117	gi9558705	Homo sapiens	envelope	466	77
1118	AAE15241	Homo sapiens	Human RNA metabolism protein-4 (RMEP-4).	514	100
1118	ABB89053	Homo sapiens	Human polypeptide SEQ ID NO 1429.	514	100
1118	AAG89341	Homo sapiens	Human secreted protein, SEQ ID NO: 461.	501	99
1119	AAE23979	Homo sapiens	Human LP217 secreted protein.	4563	50
1119	AAB20155	Homo sapiens	Secreted protein SECP1.	4522	50
1119	AAM39295	Homo sapiens	Human polypeptide SEQ ID NO 2440.	4518	50
1120	AAB28199	Homo sapiens	Human HMG-17 non histone chromosomal protein.	429	94

Table 2B

247

SEQ ID	Hit ID	Species	Description	S score	% Identity
1120	gi32329	Homo sapiens	put. HMG-17 protein	429	94
1120	gi306864	Homo sapiens	high mobility group protein 17	429	94
1121	ABP43105	Homo sapiens	Human ovarian antigen HVCBB19, SEQ ID NO:4237.	456	69
1121	AAE13797	Homo sapiens	Human lung tumour-specific protein SALT-T8.	456	69
1121	AAB44456	Homo sapiens	Human lung tumour-specific antigen encoded by cDNA #71.	456	69
1122	AAM93711	Homo sapiens	Human polypeptide, SEQ ID NO: 3650.	2974	99
1122	ABB89767	Homo sapiens	Human polypeptide SEQ ID NO 2143.	2214	97
1122	gi7303971	Drosophila melanogaster	CG8230-PA	1154	41
1123	AAU76036	Homo sapiens	Human sugar transporter-1 (HST-1) protein sequence.	1055	99
1123	AAB60112	Homo sapiens	Human transport protein TPPT-32.	775	100
1123	AAB61903	Homo sapiens	Atherosclerosis-associated polypeptide.	380	48
1124	AAR28120	Homo sapiens	NKG2 transmembrane protein-D.	725	95
1124	ABB11846	Homo sapiens	Human integral membrane protein homologue, SEQ ID NO:2216.	722	94
1124	gi35063	Homo sapiens	Type II integral membrane protein	722	94
1125	AAM78418	Homo sapiens	Human protein SEQ ID NO 1080.	1878	94
1125	gi21518639	Homo sapiens	TSLC1-like 2	1870	97
1125	gi19068139	Mus musculus	membrane glycoprotein	1849	96
1126	AAB94738	Homo sapiens	Human protein sequence SEQ ID NO:15776.	3079	99
1126	AAM41695	Homo sapiens	Human polypeptide SEQ ID NO 6626.	2456	99
1126	AAM39909	Homo sapiens	Human polypeptide SEQ ID NO 3054.	1272	100
1127	AAB75594	Homo sapiens	Human secreted protein sequence encoded by gene 37 SEQ ID NO:148.	678	99
1127	AAB80437	Homo sapiens	Gene #20 associated peptide #1.	381	98
1127	AAM78175	Homo sapiens	Human bone marrow expressed probe encoded protein SEQ ID NO: 38481.	365	100
1128	gi291529	Mouse cytomegalovirus 1	tegument protein	89	24
1128	gi14573798	Caenorhabditis elegans	C. elegans SRD-60 protein (corresponding sequence C13B7.3)	85	28
1128	gi191992	Mus musculus	APC	79	20
1129	gi20987535	Mus musculus	RIKEN cDNA 3300002C04 gene	741	67
1129	gi20799661	Mus musculus	mucolipin-2	741	67
1129	AAB93412	Homo sapiens	Human protein sequence SEQ ID NO:12616.	632	55
1130	gi19354289	Mus musculus	RIKEN cDNA 2010107G23 gene	111	42
1130	ABB79328	Homo sapiens	Human ovary specific protein SEQ ID NO:125.	107	42
1130	gi15488920	Homo sapiens	Similar to RIKEN cDNA 2010107G23 gene	107	42
1131	AAU70675	Homo sapiens	Human otoferlin.	2432	42

Table 2B

248

SEQ ID	Hit ID	Species	Description	S score	% Identity
1131	gi4588470	Homo sapiens	otoferlin	2432	42
1131	AAU70673	Homo sapiens	Human otoferlin #2.	2420	42
1132	gi20071179	Homo sapiens	monocyte to macrophage differentiation-associated	1032	77
1132	gi1006665	Homo sapiens	expression associated with monocyte to macrophage differentiation	1028	77
1132	gi18314462	Mus musculus	monocyte to macrophage differentiation-associated	1028	77
1133	AAU95752	Homo sapiens	Human olfactory and pheromone G protein-coupled receptor #239.	1522	92
1133	AAU85278	Homo sapiens	G-coupled olfactory receptor #139.	1499	91
1133	AAU24658	Homo sapiens	Human olfactory receptor AOLFR156.	1499	91
1134	AAE13275	Homo sapiens	Human transporters and ion channels (TRICH)-2.	1472	80
1134	gi17384411	Homo sapiens	bA251O17.3 (similar to aquaporin 7)	1469	80
1134	AAY70455	Homo sapiens	Human membrane channel protein-5 (MECHP-5).	1295	73
1135	ABG42409	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 32074.	317	100
1135	AAM32826	Homo sapiens	Peptide #6863 encoded by probe for measuring placental gene expression.	317	100
1135	AAM19638	Homo sapiens	Peptide #6072 encoded by probe for measuring cervical gene expression.	317	100
1136	AAB47977	Homo sapiens	BCY5.	2663	99
1136	gi2463632	Homo sapiens	monocarboxylate transporter homologue MCT6	2574	97
1136	gi21265165	Homo sapiens	solute carrier family 16 (monocarboxylic acid transporters), member 7	602	31
1137	ABB08456	Homo sapiens	Human tumour specific antigenic peptide #2.	705	94
1137	AAU08592	Homo sapiens	Human V-ATPase 16kDa subunit.	705	94
1137	gi14424534	Homo sapiens	ATPase, H+ transporting, lysosomal (vacuolar proton pump) 16kD	705	94
1138	gi16741167	Mus musculus	RIKEN cDNA 0610010D20 gene	1506	87
1138	gi15080314	Homo sapiens	Similar to RIKEN cDNA 0610010D20 gene	514	100
1138	gi10580053	Halobacterium sp. NRC-1	dihydrodipicolinate synthase; DapA	375	33
1139	AAO14199	Homo sapiens	Human transporter and ion channel TRICH-16.	1425	85
1139	ABB80588	Homo sapiens	Human sbg1020829SGLT protein.	1425	85
1139	AAE06614	Homo sapiens	Human protein having hydrophobic domain, HP03974.	1425	85
1140	ABB90752	Homo sapiens	Human Tumour Endothelial Marker polypeptide SEQ ID NO 236.	1890	76
1140	gi6708478	Mus musculus	formin-like protein	1559	65
1140	gi4101720	Mus musculus	lymphocyte specific formin related protein	1532	65
1141	AAB94131	Homo sapiens	Human protein sequence SEQ ID NO:14389.	996	96
1141	gi497984	Bos taurus	Ac45	317	39
1141	AAM93671	Homo sapiens	Human polypeptide, SEQ ID NO:	307	36

Table 2B

249

SEQ ID	Hit ID	Species	Description	S score	% Identity
			3556.		
1142	AAG67137	Homo sapiens	Amino acid sequence of a human enzyme.	2701	96
1142	gi21707691	Mus musculus	RIKEN cDNA 1500002O20 gene	2645	93
1142	AAB94358	Homo sapiens	Human protein sequence SEQ ID NO:14883.	2579	96
1143	AAW54370	Homo sapiens	G-protein coupled receptor HLTEX11.	1815	100
1143	AAB64854	Homo sapiens	Human secreted protein sequence encoded by gene 36 SEQ ID NO:140.	1792	100
1143	AAB64853	Homo sapiens	Gene 36 human secreted protein homologous amino acid sequence #139.	1792	100
1144	ABB90324	Homo sapiens	Human polypeptide SEQ ID NO 2700.	1321	100
1144	AAU82004	Homo sapiens	Human secreted protein SECP30.	989	78
1144	AAM95005	Homo sapiens	Human reproductive system related antigen SEQ ID NO: 3663.	548	85
1145	AAY13458	Homo sapiens	Amino acid sequence of human Fe65.	3759	100
1145	gi2734083	Homo sapiens	stat-like protein	3759	100
1145	gi3924936	Homo sapiens	Fe65 protein	3759	100
1146	AAB08900	Homo sapiens	Human secreted protein sequence encoded by gene 10 SEQ ID NO:57.	845	90
1146	AAY27071	Homo sapiens	Human JWA protein.	845	90
1146	AAW75110	Homo sapiens	Human secreted protein encoded by gene 54 clone HETGL41.	845	90
1147	AAM93733	Homo sapiens	Human polypeptide, SEQ ID NO: 3697.	764	87
1147	gi2970431	Florometra serratissima	NADH dehydrogenase subunit 4	91	31
1147	gi15128604	Inversidens japanensis	NADH dehydrogenase subunit 4	77	29
1148	AAB93562	Homo sapiens	Human protein sequence SEQ ID NO:12957.	2402	100
1148	gi21626993	Drosophila melanogaster	CG15078-PA	990	39
1148	gi17945442	Drosophila melanogaster	RE18318p	990	39
1149	ABB89832	Homo sapiens	Human polypeptide SEQ ID NO 2208.	1640	99
1149	ABB89833	Homo sapiens	Human polypeptide SEQ ID NO 2209.	838	97
1149	gi16359249	Mus musculus	RIKEN cDNA 1300010M03 gene	630	36
1150	ABB89832	Homo sapiens	Human polypeptide SEQ ID NO 2208.	1640	99
1150	ABB89833	Homo sapiens	Human polypeptide SEQ ID NO 2209.	838	97
1150	gi16359249	Mus musculus	RIKEN cDNA 1300010M03 gene	564	35
1151	ABB78999	Homo sapiens	Human 9-27 protein sequence SEQ ID NO:4483.	569	93
1151	gi1177476	Homo sapiens	interferon-inducible protein	569	93
1151	gi12654159	Homo sapiens	interferon induced transmembrane protein 1 (9-27)	569	93

Table 2B

250

SEQ ID	Hit ID	Species	Description	S score	% Identity
1152	AAU85153	Homo sapiens	G-coupled olfactory receptor #14.	1730	100
1152	AAU24529	Homo sapiens	Human olfactory receptor AOLFR14.	1730	100
1152	gi21928719	Homo sapiens	seven transmembrane helix receptor	1630	100
1153	gi784997	Homo sapiens	homologue to Drosophila tumour supressor gene	5300	95
1153	gi1944491	Homo sapiens	homologue of the murine Llglh gene	4891	90
1153	gi22347352	Rattus norvegicus	RGL1	4878	88
1154	AAM79219	Homo sapiens	Human protein SEQ ID NO 1881.	325	64
1155	AAG63804	Homo sapiens .	Amino acid sequence of a human amino acid transporter.	2487	100
1155	gi9309293	Homo sapiens	asc-type amino acid transporter 1	2487	100
1155	gi15277644	Homo sapiens	amino acid transporter	2487	100
1156	gi6760373	Homo sapiens	ODZ3	2323	100
1156	gi4760780	Mus musculus	Ten-m3	2248	96
1156	AAU09891	Homo sapiens	Human heregulin, gamma-HRG.	1202	52
1157	AAY51559	Homo sapiens	Human RGDI protein.	724	81
1157	AAW74804	Homo sapiens	Human secreted protein encoded by gene 75 clone HBIAB39.	724	81
1157	gi4877285	Homo sapiens	prenylated Rab acceptor 1 (PRA1)	724	81
1158	gi1780976	Human endogenous retrovirus K	protease	912	59
1158	gi5802824	Homo sapiens	Gag-Pro-Pol protein	909	59
1158	gi5802814	Homo sapiens	Gag-Pro-Pol-Env protein	906	58
1159	AAY73339	Homo sapiens	HTRM clone 2056042 protein sequence.	867	80
1159	gi13111941	Homo sapiens	vesicle-associated soluble NSF attachment protein receptor (v-SNARE; homolog of S. cerevisiae VTI1)	867	80
1159	gi3861488	Homo sapiens	vesicle soluble NSF attachment protein receptor VTI2	867	80
1160	gi1922891	Mus musculus	alpha 3B chain of laminin-5	10336	75
1160	gi5777581	Homo sapiens	alpha 3B chain of laminin-5	9398	99
1160	AAB48459	Homo sapiens	Human laminin 5 polypeptide, SEQ ID NO: 8.	8690	100
1161	ABP43534	Homo sapiens	Human secreted protein (SCEP) 58.	1984	91
1161	AAG67516	Homo sapiens	Amino acid sequence of a human secreted polypeptide.	1984	91
1161	AAE01167	Homo sapiens	Human gene 4 encoded secreted protein HKAAV61, SEQ ID NO:68.	1984	91
1162	AAM42034	Homo sapiens	Human polypeptide SEQ ID NO 6965.	900	99
1162	AAM40248	Homo sapiens	Human polypeptide SEQ ID NO 3393.	821	100
1162	AAP60254	Homo sapiens	Interferon-pseudo-omega-2.	800	98
1163	AAB19924	Homo sapiens	Human interleukin-1 Hy2 (long version).	818	100
1163	AAB19923	Homo sapiens	Human interleukin-1 Hy2 (extended form, partial sequence).	818	100
1163	AAB19922	Homo sapiens	Human interleukin-1 Hy2 (short version).	818	100
1164	AAB37512	Homo sapiens	Human VEGF C subunit SEQ ID NO: 49.	1061	90

Table 2B

251

SEQ ID	Hit ID	Species	Description	S score	% Identity
1164	AAY57035	Homo sapiens	Human A215 amino acid sequence.	1061	90
1164	AAY94803	Homo sapiens	Human VEGF.	1061	90
1165	ABB84974	Homo sapiens	Human PRO4342 protein sequence SEQ ID NO:316.	770	99
1165	ABB95580	Homo sapiens	Human angiogenesis related protein PRO4342 SEQ ID NO: 316.	770	99
1165	AAB66664	Homo sapiens	Protein encoded by extended B2HFLS20W cDNA library sequence #2.	770	99
1166	gi1321816	Gorilla gorilla	interleukin-8 receptor type B	602	90
1166	AAU10557	Homo sapiens	Human interleukin 8 receptor beta (IL8RB) polypeptide.	599	88
1166	AAU80482	Homo sapiens	Human CXCR2 receptor #1.	599	88
1167	gi1160967	Homo sapiens	palmitoyl-protein thioesterase	1463	92
1167	gi1314355	Homo sapiens	palmitoyl protein thioesterase	1463	92
1167	gi4250054	Homo sapiens	palmitoyl-protein thioesterase 1 (ceroid-lipofuscinosis, neuronal 1, infantile)	1463	92
1168	gi177814	Homo sapiens	alpha-1-antitrypsin-related protein	1952	90
1168	AAY78890	Homo sapiens	Human alpha1-antitrypsin amino acid sequence.	1450	69
1168	AAW56709	Homo sapiens	Amino acid sequence of the alpha-1-antitrypsin.	1450	69
1169	AAO12931	Homo sapiens	Human polypeptide SEQ ID NO 26823.	346	100
1169	AAO02697	Homo sapiens	Human polypeptide SEQ ID NO 16589.	143	66
1169	AAO08307	Homo sapiens	Human polypeptide SEQ ID NO 22199.	137	80
1170	AAR15222	Homo sapiens	Chronic myelogenous leukaemia-derived myeloid-related protein.	635	100
1170	gi32402	Homo sapiens	HP-1 (AA 1-94)	493	100
1170	gi181529	Homo sapiens	defensin 1	493	100
1171	AAU98513	Homo sapiens	Transmembrane receptor-like protein pTB2185.	71	46
1171	AAU98512	Homo sapiens	Transmembrane receptor-like protein pTB2184.	71	46
1171	gi1001697	Synechocystis sp. PCC 6803	sensory transduction histidine kinase	67	37
1172	AAE14454	Homo sapiens	Human protein phosphatase-4.	2131	99
1172	gi2665458	Mus musculus	protein-tyrosine-phosphatase	1361	63
1172	gi22328117	Homo sapiens	similar to protein-tyrosine-phosphatase homolog DKFZp566K0524.1 - human (fragment)	729	96
1173	AAM25683	Homo sapiens	Human protein sequence SEQ ID NO:198.	956	96
1173	AAY48226	Homo sapiens	Human prostate cancer-associated protein 12.	956	96
1173	ABP41699	Homo sapiens	Human ovarian antigen HFTCG52, SEQ ID NO:2831.	950	94
1174	gi20379895	Homo sapiens	Similar to small inducible cytokine A4	124	77
1174	AAM52447	Homo sapiens	HIV_Nef1 fusion protein #14.	122	100
1174	AAM52446	Homo sapiens	HIV_Nef1 fusion protein #13.	122	100

Table 2B

252

SEQ ID	Hit ID	Species	Description	S score	% Identity
1175	gi20379895	Homo sapiens	Similar to small inducible cytokine A4	305	100
1175	AAM52447	Homo sapiens	HIV_Nef1 fusion protein #14.	123	92
1175	AAM52446	Homo sapiens	HIV_Nef1 fusion protein #13.	123	92
1176	AAG03315	Homo sapiens	Human secreted protein, SEQ ID NO: 7396.	314	100
1176	gi16415877	Octopus salutii	cytochrome oxidase subunit III	70	28
1176	gi602047	Octopus rubescens	cytochrome oxidase subunit III	69	28
1177	AAG03757	Homo sapiens	Human secreted protein, SEQ ID NO: 7838.	453	89
1177	gi178836	Homo sapiens	apolipoprotein C-II	453	89
1177	gi757915	Homo sapiens	apoCII protein	453	89
1178	AAO07986	Homo sapiens	Human polypeptide SEQ ID NO 21878.	73	31
1178	gi4884689	Neisseria meningitidis	lactoferrin-binding protein precursor	70	34
1178	gi172002	Saccharomyces cerevisiae	homologue of bacterial MutS protein	69	24
1179	AAB60502	Homo sapiens	Human cell cyclc and proliferation protein CCYPR-50, SEQ ID NO:50.	1656	92
1179	AAB12144	Homo sapiens	Hydrophobic domain protein isolated from WERI-RB cells.	1649	92
1179	gi19880267	Homo sapiens	metallo phosphoesterase	1649	92
1180	AAU91402	Homo sapiens	Human secreted protein sequence #55.	435	100
1180	AAU91376	Homo sapiens	Human secreted protein sequence #29.	435	100
1180	AAU91352	Homo sapiens	Human secreted protein sequence #5.	435	100
1181	AAG01183	Homo sapiens	Human secreted protein, SEQ ID NO: 5264.	275	94
1181	AAO04719	Homo sapiens	Human polypeptide SEQ ID NO 18611.	99	36
1181	AAO03100	Homo sapiens	Human polypeptide SEQ ID NO 16992.	99	42
1182	ABB12063	Homo sapiens	Human secreted protein homologue, SEQ ID NO:2433.	326	100
1182	AAE06730	Homo sapiens	Human CASB765 protein.	200	100
1182	AAU81960	Homo sapiens	Human PRO536.	141	81
1183	AAB75349	Homo sapiens	Human secreted protein #8.	748	98
1183	AAG74502	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:5266.	748	98
1183	AAU27661	Homo sapiens	Human protein AFP485790.	748	98
1184	ABB84887	Homo sapiens	Human PRO791 protein sequence SEQ ID NO:142.	1025	90
1184	ABB90305	Homo sapiens	Human polypeptide SEQ ID NO 2681.	1025	90
1184	ABB95493	Homo sapiens	Human angiogenesis related protein PRO791 SEQ ID NO: 142.	1025	90
1185	gi2745733	Homo sapiens	S2P	75	36
1185	gi4164134	Homo sapiens	SP2 metalloprotease	75	36
1185	gi15865970	Varanus spenceri	NADH dehydrogenase subunit 2	73	27
1186	AAU69480	Homo sapiens	Human purified secretory polypeptide #49.	283	92

Table 2B

253

SEQ ID	Hit ID	Species	Description	S score	% Identity
1186	gi7770223	Homo sapiens	PRO2714	281	84
1187	ABB09144	Homo sapiens	Human phospholipase A2 protein cPLA2 SEQ ID NO:1.	4446	99
1187	ABB07494	Homo sapiens	Human lipid metabolism molecule (LMM) polypeptide (ID: 1281946CD1).	4407	99
1187	AAE05958	Homo sapiens	Human phospholipase-like protein #3.	4215	99
1188	gi14717809	Mus musculus	capsule seleno-protein	96	30
1188	gi14717800	Mus musculus	seleno-protein	96	30
1188	gi2992470	Mus sp.	mitochondrial capsule selenoprotein; MCS	96	30
1189	AAE05095	Homo sapiens	Human inter-alpha trypsin inhibitor (ITI) light chain.	1775	94
1189	AAM79366	Homo sapiens	Human protein SEQ ID NO 3012.	1775	94
1189	AAM78382	Homo sapiens	Human protein SEQ ID NO 1044.	1775	94
1190	gi673422	Homo sapiens	T-cell receptor alpha-chain	1323	93
1190	ABB95403	Homo sapiens	Human P501S specific T cell clone 4E5 Va chain protein SEQ ID NO 906.	1095	77
1190	AAM01298	Homo sapiens	P501S-specific T cell clone 4E5 Va chain T cell receptor amino acid.	1095	77
1191	gi673422	Homo sapiens	T-cell receptor alpha-chain	859	95
1191	gi623119	Macaca mulatta	T-cell receptor alpha	603	86
1191	ABB95403	Homo sapiens	Human P501S specific T cell clone 4E5 Va chain protein SEQ ID NO 906.	593	65
1192	gi53861	Mus musculus	Q300 protein (AA 1-77)	69	41
1193	ABB89241	Homo sapiens	Human polypeptide SEQ ID NO 1617.	247	69
1193	AAB08894	Homo sapiens	Human secreted protein sequence encoded by gene 4 SEQ ID NO:51.	208	57
1193	gi21070180	Danio rerio	envelope protein	102	40
1194	AAG03963	Homo sapiens	Human secreted protein, SEQ ID NO: 8044.	417	80
1194	ABB10412	Homo sapiens	Human cDNA SEQ ID NO: 720.	289	100
1194	ABB10168	Homo sapiens	Human cDNA SEQ ID NO: 476.	289	100
1196	AAM41429	Homo sapiens	Human polypeptide SEQ ID NO 6360.	328	100
1196	AAM39643	Homo sapiens	Human polypeptide SEQ ID NO 2788.	328	100
1196	AAM79610	Homo sapiens	Human protein SEQ ID NO 3256.	328	100
1197	AAE19830	Homo sapiens	Human patched (Ptch) protein.	213	63
1197	AAB67163	Homo sapiens	Human patched protein.	213	63
1197	AAW47157	Homo sapiens	Nevoid basal cell carcinoma syndrome (NBCCS) (PTC) protein.	213	63
1198	AAB25674	Homo sapiens	Human secreted protein sequence encoded by gene 10 SEQ ID NO:63.	643	84
1198	AAB36613	Homo sapiens	Human FLEXHT-35 protein sequence SEQ ID NO:35.	626	80
1198	gi14603247	Homo sapiens	Similar to RIKEN cDNA 5730409G15 gene	626	80
1199	AAO04718	Homo sapiens	Human polypeptide SEQ ID NO 18610.	160	75
1199	AAO04681	Homo sapiens	Human polypeptide SEQ ID NO	160	75

Table 2B

254

SEQ ID	Hit ID	Species	Description	S score	% Identity
			18573.		
1199	AAO02320	Homo sapiens	Human polypeptide SEQ ID NO 16212.	154	73
1200	AAU12292	Homo sapiens	Human PRO6027 polypeptide sequence.	990	98
1200	AAU27673	Homo sapiens	Human protein AFP235412.	987	99
1200	gi7303340	Drosophila melanogaster	CG4676-PA	189	30
1201	ABG60015	Homo sapiens	Human DITHP polypeptide #73.	281	66
1201	ABG60059	Homo sapiens	Human DITHP polypeptide #117.	249	60
1201	gi21928245	Homo sapiens	seven transmembrane helix receptor	218	60
1202	ABG60015	Homo sapiens	Human DITHP polypeptide #73.	276	68
1202	ABG60059	Homo sapiens	Human DITHP polypeptide #117.	257	47
1202	AAB43928	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1373.	223	55
1203	AAE04368	Homo sapiens	Human kinase (PKIN)-9.	120	85
1203	AAM79153	Homo sapiens	Human protein SEQ ID NO 1815.	120	85
1203	AAY68784	Homo sapiens	Amino acid sequence of a human phosphorylation effector PHSP-16.	120	85
1204	AAU74760	Homo sapiens	Human protease PRTS-20 protein sequence.	1042	98
1204	AAE04733	Homo sapiens	Human protease homologue #1.	1037	98
1204	AAE04734	Homo sapiens	Human protease homologue #2.	1019	97
1205	AAW67842	Homo sapiens	Human secreted protein encoded by gene 36 clone HODCL36.	451	76
1205	gi7717366	Homo sapiens	tryptophan rich protein, congenital heart disease 5 protein CHD5	451	76
1205	gi1946205	Homo sapiens	congenital heart disease 5 protein	445	75
1206	AAG01971	Homo sapiens	Human secreted protein, SEQ ID NO: 6052.	314	100
1206	gi3183989	Lycopersicon esculentum	P69E protein	78	41
1206	gi4200340	Lycopersicon esculentum	P69D protein	77	41
1207	gi14043211	Homo sapiens	Similar to RIKEN cDNA 4931428F04 gene	889	83
1207	gi11276027	Rattus norvegicus	LSC	92	30
1207	gi1389756	Mus musculus	Lsc	92	30
1208	AAY91653	Homo sapiens	Human secreted protein sequence encoded by gene 62 SEQ ID NO:326.	813	79
1208	AAY91512	Homo sapiens	Human secreted protein sequence encoded by gene 62 SEQ ID NO:185.	813	79
1208	AAY44720	Homo sapiens	Human immune system molecule, ISMO-1.	747	78
1209	AAY27648	Homo sapiens	Human secreted protein encoded by gene No. 82.	322	98
1209	gi7959897	Homo sapiens	PRO2379	68	39
1211	AAU19622	Homo sapiens	Human diagnostic and therapeutic polypeptide (DITHP) #208.	339	62
1211	AAB08765	Homo sapiens	A human leukocyte and blood related protein (LBAP).	339	62
1211	AAB74718	Homo sapiens	Human membrane associated protein	314	66

Table 2B

255

SEQ ID	Hit ID	Species	Description	S score	% Identity
			MEMAP-24.		
1212	AAG65893	Homo sapiens	Amino acid sequence of GSK gene Id 90060.	1901	71
1212	AAB80264	Homo sapiens	Human PRO332 protein.	928	41
1212	AAU12356	Homo sapiens	Human PRO332 polypeptide sequence.	928	41
1213	AAE24240	Homo sapiens	Human 23566 (carboxypeptidase) protein.	1551	99
1213	AAG66547	Homo sapiens	Human secreted metallocarboxypeptidase-like polypeptide.	1551	99
1213	AAG66565	Homo sapiens	Human secreted metallocarboxypeptidase-like variant polypeptide.	1548	98
1214	AAB82317	Homo sapiens	Human immunoglobulin receptor IRTA4 protein.	528	100
1214	AAB85464	Homo sapiens	Human immunoglobulin domain-containing polypeptide.	528	100
1214	gi15528833	Homo sapiens	Fc receptor-like protein 2	528	100
1215	ABP43492	Homo sapiens	Human secreted protein (SCEP) 16.	1033	100
1215	gi20380668	Homo sapiens	similar to MANNOSE-P-DOLICHOL UTILIZATION DEFECT 1 PROTEIN HOMOLOG	1033	100
1215	AAU27663	Homo sapiens	Human protein AFP285042.	905	90
1216	AAU97104	Homo sapiens	Human MK61 protein, hMK61T4.	979	99
1216	AAU97106	Homo sapiens	Human MK61 protein, hMK61T6.	846	88
1216	AAU97101	Homo sapiens	Human MK61 protein, hMK61T1.	683	83
1217	AAU97106	Homo sapiens	Human MK61 protein, hMK61T6.	833	94
1217	AAU97104	Homo sapiens	Human MK61 protein, hMK61T4.	805	85
1217	AAU97101	Homo sapiens	Human MK61 protein, hMK61T1.	529	92
1218	AAB92697	Homo sapiens	Human protein sequence SEQ ID NO:11091.	71	44
1218	AAB92547	Homo sapiens	Human protein sequence SEQ ID NO:10726.	71	44
1218	gi386638	Mus sp.	mesenchyme fork head 1	70	34
1220	gi1171589	Plasmodium falciparum	frameshift	74	33
1220	gi4512010	Escherichia coli	OrfY	66	50
1221	AAO15424	Homo sapiens	Human genset metabolic gene (GMG-10) protein.	1462	94
1221	AAB50371	Homo sapiens	Human ZACRP7.	1462	94
1221	AAE09444	Homo sapiens	Human SBhACRP30a protein #2.	1462	94
1222	ABG40131	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 29796.	71	34
1222	AAM05935	Homo sapiens	Peptide #4617 encoded by probe for measuring breast gene expression.	71	34
1222	AAM30815	Homo sapiens	Peptide #4852 encoded by probe for measuring placental gene expression.	71	34
1223	gi8850245	Homo sapiens	activated p21cdc42Hs kinase	5605	100
1223	gi2921447	Mus musculus	non-receptor protein tyrosine kinase Ack	5164	92
1223	gi2078388	Bos taurus	Cdc42-associated tyrosine kinase ACK-2	3503	91
1224	AAB84696	Homo sapiens	Amino acid sequence of a human	358	33

Table 2B

256

SEQ ID	Hit ID	Species	Description	S score	% Identity
			zkun10 polypeptide.		
1224	gi211622	Gallus gallus	alpha-3 collagen type VI	300	32
1224	ABP41277	Homo sapiens	Human ovarian antigen HOCQH66, SEQ ID NO:2409.	281	30
1225	AAB66065	Homo sapiens	Human TANGO 294.	2113	99
1225	AAE11931	Homo sapiens	Human CG162 (or C59) lipase protein #2.	2113	99
1225	AAB66067	Homo sapiens	Human TANGO 294 mature protein.	2015	99
1226	AAM06483	Homo sapiens	Human foetal protein, SEQ ID NO: 214.	283	64
1227	AAR60521	Homo sapiens	Human tetranectin.	869	83
1227	gi37409	Homo sapiens	Tetranectin	869	83
1227	gi825722	Homo sapiens	tetranectin	869	83
1228	gi5790207	Taenia saginata	ATPase subunit 6	68	32
1228	gi8778323	Arabidopsis thaliana	F14J16.24	66	52
1229	AAE01790	Homo sapiens	Human gene 21 encoded secreted protein HDPTW65, SEQ ID NO:111.	142	59
1229	AAE01838	Homo sapiens	Human gene 21 encoded secreted protein HDPTW65, SEQ ID NO:159.	140	57
1229	ABB11479	Homo sapiens	Human reverse transcriptase homologue, SEQ ID NO:1849.	91	55
1230	ABB50466	Homo sapiens	Human secreted protein encoded by gene 166 SEQ ID NO:414.	333	100
1230	AAW88699	Homo sapiens	Secreted protein encoded by gene 166 clone HCEQA68.	333	100
1230	AAU83594	Homo sapiens	Human PRO protein, Seq ID No 6.	327	100
1231	AAG00381	Homo sapiens	Human secreted protein, SEQ ID NO: 4462.	263	91
1231	AAU19357	Homo sapiens	Human G protein-coupled receptor nGPCR-2290.	119	52
1231	AAO13251	Homo sapiens	Human polypeptide SEQ ID NO 27143.	105	39
1232	AAM06558	Homo sapiens	Human foetal protein, SEQ ID NO: 289.	301	98
1233	AAM06562	Homo sapiens	Human foetal protein, SEQ ID NO: 293.	383	100
1233	AAU03519	Homo sapiens	Human protein kinase #19.	76	34
1234	gi13561474	Mertensiella luschani atifi	NADH dehydrogenase subunit 2	70	25
1234	gi13561462	Mertensiella luschani billae	NADH dehydrogenase subunit 2	70	26
1234	gi13561454	Salamandra infraimmaculata	NADH dehydrogenase subunit 2	69	32
1236	gi992917	Glycine max	acetyl CoA carboxylase	67	53
1236	gi1066857	Glycine max	acetyl-CoA carboxylase	65	53
1237	AAE20197	Homo sapiens	Human TIE ligand, FLS139 protein.	1947	94
1237	AAE19828	Homo sapiens	Human FLS 139 ligand protein.	1947	94
1237	ABB80020	Homo sapiens	TIE ligand FLS139 amino acid.	1947	94
1238	AAM06568	Homo sapiens	Human foetal protein, SEQ ID NO: 299.	142	57
1245	gi3873768	Caenorhabditis elegans	contains similarity to Pfam domain: PF01461 (7TM chemoreceptor), Score=28.9, E-value=1.5e-16, N=2	69	28
1245	AAU83682	Homo sapiens	Human PRO protein, Seq ID No 182.	67	39

Table 2B

257

SEQ ID	Hit ID	Species	Description	S score	% Identity
1245	AAU29165	Homo sapiens	Human PRO polypeptide sequence #142.	67	39
1247	ABB89102	Homo sapiens	Human polypeptide SEQ ID NO 1478.	517	100
1247	AAM38788	Homo sapiens	Human polypeptide SEQ ID NO 1933.	83	21
1247	gi21109777	Xanthomonas axonopodis pv. citri str. 306	transcriptional regulator	83	28
1248	gi15292277	Drosophila melanogaster	LD45324p	70	26
1249	gi298848	Equine herpesvirus 1	glycoprotein C homolog	67	41
1249	gi330808	Equine herpesvirus 1	membrane glycoprotein C	67	41
1249	gi330899	Equine herpesvirus 1	glycoprotein gp13 precursor	67	41
1251	AAO11677	Homo sapiens	Human polypeptide SEQ ID NO 25569.	74	54
1255	gi16551105	Crotalus adamanteus	NADH dehydrogenase subunit 5	66	28
1257	ABB53264	Homo sapiens	Human polypeptide #4.	3044	100
1257	gi18565270	Homo sapiens	Lib	3028	99
1257	gi18565266	Rattus norvegicus	Lib	2551	83
1259	gi335876	Vesicular stomatitis virus	matrix (M) protein	71	26
1259	gi61842	Vesicular stomatitis virus	M protein (aa 1-237)	71	26
1259	gi336034	Vesicular stomatitis virus	M-protein	71	26
1261	AAB95686	Homo sapiens	Human protein sequence SEQ ID NO:18490.	983	99
1261	gi18446901	Drosophila melanogaster	AT07234p	80	32
1262	gi9858058	Tortula ruralis	rehydrin	85	29
1262	gi19882261	Gallus gallus	paranemin	80	27
1262	gi9837383	Bos taurus	retinitis pigmentosa GTPase regulator	76	29
1263	AAU98893	Homo sapiens	Human protease PRTS11.	1600	80
1263	gi965014	Mus musculus	ADAM 4 protein precursor	1297	51
1263	gi1061159	Macaca fascicularis	testicular Metalloprotease-like, Disintegrin-like, Cysteine-rich protein IVa	1253	38
1264	AAE21462	Homo sapiens	Human gene 11 encoded secreted protein HWBBT49, SEQ ID NO:78.	2107	99
1264	AAM80033	Homo sapiens	Human protein SEQ ID NO 3679.	1895	98
1264	AAM79049	Homo sapiens	Human protein SEQ ID NO 1711.	1895	98
1265	AAB44605	Homo sapiens	Human secreted protein sequence encoded by gene 10 SEQ ID NO:70.	93	70
1266	AAO15039	Homo sapiens	Human clusterin protein sequence 1.	1981	87
1266	gi30251	Homo sapiens	SP-40,40 prepropeptide (AA -22 to 427)	1981	87
1266	gi14714741	Homo sapiens	clusterin (complement lysis inhibitor, SP-40,40, sulfated glycoprotein 2,	1981	87

Table 2B

258

SEQ ID	Hit ID	Species	Description	S score	% Identity
			testosterone-repressed prostate message 2, apolipoprotein J)		
1267	AAB37963	Homo sapiens	Human antithrombin III amino acid sequence.	2136	91
1267	AAY92224	Homo sapiens	Human antithrombin III.	2136	91
1267	AAR42895	Homo sapiens	Human antithrombin III (wild-type).	2136	91
1268	AAB37963	Homo sapiens	Human antithrombin III amino acid sequence.	2276	96
1268	AAY92224	Homo sapiens	Human antithrombin III.	2276	96
1268	AAR42895	Homo sapiens	Human antithrombin III (wild-type).	2276	96
1269	gi203519	Rattus norvegicus	cytochrome c oxidase subunit VIc	247	67
1269	gi19354073	Mus musculus	cytochrome c oxidase, subunit VIc	244	67
1269	AAB56523	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1101.	229	61
1270	gi7981304	Homo sapiens	dJ551D2.1.2 (cadherin-like protein VR20, isoform 2)	575	84
1270	AAM96033	Homo sapiens	Human reproductive system related antigen SEQ ID NO: 4691.	512	84
1270	gi9622236	Homo sapiens	cadherin-like protein VR20	272	100
1271	gi6692690	Arabidopsis thaliana	F12K11.14	105	26
1271	gi158696	Drosophila melanogaster	tropomyosin isoform 9D	100	25
1271	gi158695	Drosophila melanogaster	tropomyosin isoform 33 (9C)	100	25
1272	gi6692690	Arabidopsis thaliana	F12K11.14	106	24
1272	gi11935051	Oryctolagus cuniculus	sarcolemmal associated protein 1	99	27
1272	gi1850913	Entamoeba histolytica	myosin heavy chain	98	19
1273	AAM79617	Homo sapiens	Human protein SEQ ID NO 3263.	1481	94
1273	AAM78633	Homo sapiens	Human protein SEQ ID NO 1295.	1481	94
1273	gi16876913	Homo sapiens	mercaptopyruvate sulfurtransferase	1481	94
1274	AAO21899	Homo sapiens	Protein of human protease.	772	49
1274	AAE18722	Homo sapiens	Human DESC1-like serine protease.	767	48
1274	AAB85039	Homo sapiens	Human SER5 protein sequence.	754	47
1275	gi12584839	Homo sapiens	HT036-ISO	1003	94
1275	gi12584841	Homo sapiens	HT036	826	93
1275	gi17985315	Brucella melitensis	HYDROXYPYRUVATE ISOMERASE	512	43
1277	AAB92449	Homo sapiens	Human protein sequence SEQ ID NO:10478.	261	100
1277	AAB83299	Homo sapiens	Human homoglutamine-rich factor 56.	261	100
1277	AAB82342	Homo sapiens	Winged helix/zinc finger transcription factor FOXP1 variant.	261	100
1278	AAM25840	Homo sapiens	Human protein sequence SEQ ID NO:1355.	208	88
1279	AAU72886	Homo sapiens	Human aspartyl protease partial protein sequence #11.	821	98
1279	AAU98884	Homo sapiens	Human protease PRTS2.	821	98
1279	gi7023943	Homo sapiens	down-regulated in gastric cancer	350	35
1280	AAG77975	Homo sapiens	Protein of a human soluble adenylyl	265	37

Table 2B

259

SEQ ID	Hit ID	Species	Description	S score	% Identity
			cyclase.		
1280	AAE21187	Homo sapiens	Human soluble adenylyl cyclase (SAC) protein.	265	37
1280	AAB81929	Homo sapiens	Human soluble adenylyl cyclase.	265	37
1282	gi4079809	Homo sapiens	HERC2	68	42
1283	ABG45272	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 34937.	153	67
1283	AAM35920	Homo sapiens	Peptide #9957 encoded by probe for measuring placental gene expression.	153	67
1283	AAM20697	Homo sapiens	Peptide #7131 encoded by probe for measuring cervical gene expression.	153	67
1284	AAG81367	Homo sapiens	Human AFP protein sequence SEQ ID NO:252.	849	90
1284	gi18088345	Homo sapiens	Similar to RIKEN cDNA 1110066C01 gene	832	90
1284	gi20381141	Mus musculus	RIKEN cDNA 1110066C01 gene	642	68
1285	AAG81367	Homo sapiens	Human AFP protein sequence SEQ ID NO:252.	939	91
1285	gi18088345	Homo sapiens	Similar to RIKEN cDNA 1110066C01 gene	827	89
1285	gi20381141	Mus musculus	RIKEN cDNA 1110066C01 gene	724	70
1286	AAM79782	Homo sapiens	Human protein SEQ ID NO 3428.	95	36
1286	AAM78798	Homo sapiens	Human protein SEQ ID NO 1460.	93	41
1286	gi177179	Homo sapiens	alpha-2 type VIII collagen	93	41
1287	gi5689766	Homo sapiens	zinc finger 2.2	2092	99
1287	AAM39130	Homo sapiens	Human polypeptide SEQ ID NO 2275.	1048	46
1287	gi3135968	Homo sapiens	b3418.1 (zinc finger protein 184 (Kruppel-like))	1048	46
1288	ABP43144	Homo sapiens	Human ovarian antigen HVVCD65, SEQ ID NO:4276.	281	86
1288	AAB44228	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1673.	281	86
1288	ABB06807	Homo sapiens	Human nGPCR-Seq1019 protein sequence SEQ ID NO:76.	69	34
1290	AAG03150	Homo sapiens	Human secreted protein, SEQ ID NO: 7231.	307	98
1290	AAW48931	Homo sapiens	Schwannomin-binding protein C-terminal fragment.	286	100
1291	AAB60098	Homo sapiens	Human transport protein TPPT-18.	2360	92
1291	gi1537070	Rattus norvegicus	nucleoporin p54	2292	88
1291	gi7688695	Homo sapiens	nucleoporin p54 protein	2246	89
1292	AAY94621	Homo sapiens	Epidermal growth factor-like variant in skin-2 amino acid sequence.	422	79
1292	ABB72266	Homo sapiens	Human protein isolated from skin cells SEQ ID NO: 417.	415	78
1292	AAB56066	Homo sapiens	Skin cell protein, SEQ ID NO: 417.	415	78
1293	AAM79352	Homo sapiens	Human protein SEQ ID NO 2998.	1018	98
1293	ABB11835	Homo sapiens	Human secreted protein homologue, SEQ ID NO:2205.	1018	98
1293	AAW78245	Homo sapiens	Fragment of human secreted protein encoded by gene 19.	1018	98
1294	AAM99920	Homo sapiens	Human polypeptide SEQ ID NO 36.	669	85

Table 2B

260

SEQ ID	Hit ID	Species	Description	S score	% Identity
1294	AAM99933	Homo sapiens	Human polypeptide SEQ ID NO 49.	629	82
1294	AAG75526	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6290.	188	38
1295	gi2598167	Homo sapiens	zinc finger protein	2772	99
1295	gi5640019	Mus musculus	zinc finger protein ZFP235	1707	65
1295	gi13277768	Mus musculus	zinc finger protein 93	1434	54
1296	gi4567180	Homo sapiens	BC37295_2 (partial)	2995	100
1296	ABB50238	Homo sapiens	Human transcription factor TRFX-89.	2734	100
1296	gi9502202	Homo sapiens	endothelial zinc finger protein induced by tumor necrosis factor alpha	2734	100
1297	ABG38718	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 28383.	97	55
1297	AAM04653	Homo sapiens	Peptide #3335 encoded by probe for measuring breast gene expression.	97	55
1297	AAM29443	Homo sapiens	Peptide #3480 encoded by probe for measuring placental gene expression.	97	55
1298	AAE14459	Homo sapiens	Human protein phosphatase-9.	601	100
1298	AAM79176	Homo sapiens	Human protein SEQ ID NO 1838.	601	100
1298	AAE14251	Homo sapiens	Human 16051b protein.	563	100
1299	AAB74690	Homo sapiens	Human protease and protease inhibitor PPIM-23.	2420	96
1299	AAB85427	Homo sapiens	Human MPROT45 polypeptide.	2420	96
1299	AAU12243	Homo sapiens	Human PRO4339 polypeptide sequence.	2420	96
1300	AAE16953	Homo sapiens	Human precursor interleukin-18 (Pro-IL-18) protein.	138	92
1300	AAG63830	Homo sapiens	Amino acid sequence of human interleukin 18 (IL-18).	138	92
1300	AAB30541	Homo sapiens	A human IL-18 with a caspase-8 cleavage site.	138	92
1301	AAE05302	Homo sapiens	Human TANGO 457 protein.	901	78
1301	AAE05303	Homo sapiens	Human mature TANGO 457 protein.	889	79
1301	AAE05305	Homo sapiens	Human TANGO 457 protein cytoplasmic domain.	883	78
1302	gi2202	Canis sp.	Clox	68	73
1302	gi6066468	Leishmania major	probable DNA polymerase zeta catalytic component	67	41
1303	gi20068312	Atropa belladonna	maturase	65	34
1304	gi297146	Homo sapiens	retinoic acid receptor gamma 2	274	100
1304	gi18031837	Mesocricetus auratus	retinoic acid receptor gamma-2	256	94
1304	gi200672	Mus musculus	retinoic acid receptor gamma	252	92
1305	AAM39737	Homo sapiens	Human polypeptide SEQ ID NO 2882.	992	99
1305	ABG34053	Homo sapiens	Human Pro peptide #24.	875	100
1305	AAM41523	Homo sapiens	Human polypeptide SEQ ID NO 6454.	875	100
1307	gi212485	Gallus gallus	ovoinhibitor	133	47
1307	ABB72111	Homo sapiens	Human protein isolated from skin cells SEQ ID NO: 150.	132	42
1307	AAB55911	Homo sapiens	Skin cell protein, SEQ ID NO: 150.	132	42

Table 2B

261

SEQ ID	Hit ID	Species	Description	S score	% Identity
1308	AAU27671	Homo sapiens	Human protein AFP355471.	486	100
1308	gi1256888	Saccharomyces cerevisiae	Ylr086wp	75	30
1308	gi21280444	Homo sapiens	AF15q14	71	27
1309	AAR15222	Homo sapiens	Chronic myelogenous leukaemia-derived mycloid-related protein.	620	100
1309	gi32402	Homo sapiens	HP-1 (AA 1-94)	493	100
1309	gi181529	Homo sapiens	defensin 1	493	100
1310	AAB39114	Homo sapiens	Human secreted protein #22.	347	100
1310	gi2316086	Pisum sativum	gibberellin 3B-hydroxylase	67	43
1310	gi2316018	Pisum sativum	gibberellin 3 beta-hydroxylase	67	43
1311	ABP47852	Homo sapiens	Human polypeptide SEQ ID NO 282.	205	40
1311	ABB90743	Homo sapiens	Human Tumour Endothelial Marker polypeptide SEQ ID NO 218.	186	42
1311	gi3127926	Homo sapiens	collagen type VI, alpha 3 chain	186	42
1312	gi16555334	Homo sapiens	Rig protein	1012	100
1312	gi16508176	Homo sapiens	small GTP-binding tumor suppressor 1	1012	100
1312	gi21040535	Homo sapiens	similar to Rig protein	1012	100
1313	gi21741597	Oryza sativa	OSJNBa0052P16.6	84	40
1313	gi21741539	Oryza sativa	OSJNBa0052P16.7	84	40
1313	gi21743203	Oryza sativa	OSJNBa0085C10.10	81	37
1314	gi2689446	Homo sapiens	R27945_1	1889	91
1314	AAM71801	Homo sapiens	Human bone marrow expressed probe encoded protein SEQ ID NO: 32107.	1872	100
1314	AAM79549	Homo sapiens	Human protein SEQ ID NO 3195.	1145	55
1315	AAM79404	Homo sapiens	Human protein SEQ ID NO 3050.	845	79
1315	gi3228237	Homo sapiens	ultra high sulfer keratin	791	69
1315	gi32472	Homo sapiens	high-sulpher keratin	783	76
1316	gi12655446	Homo sapiens	keratin associated protein 4.4	768	78
1316	gi13278909	Homo sapiens	Similar to RIKEN cDNA 1110054P19 gene	738	75
1316	gi12655460	Homo sapiens	keratin associated protein 4.12	738	75
1317	gi12655462	Homo sapiens	keratin associated protein 4.14	1102	88
1317	gi12655452	Homo sapiens	keratin associated protein 4.7	1088	84
1317	gi12655456	Homo sapiens	keratin associated protein 4.9	1002	82
1318	AAM39466	Homo sapiens	Human polypeptide SEQ ID NO 2611.	893	78
1318	AAM41252	Homo sapiens	Human polypeptide SEQ ID NO 6183.	885	78
1318	gi3228237	Homo sapiens	ultra high sulfer keratin	872	73
1319	ABB79480	Homo sapiens	Human zinc finger protein 75.68.	800	65
1319	gi6467200	Homo sapiens	gonadotropin inducible transcription repressor-1	773	63
1319	gi20306351	Homo sapiens	similar to gonadotropin inducible transcription repressor-1	773	63
1320	gi3036963	Ciona savignyi	CsCDC42	163	60
1320	gi21667044	Ustilago maydis	GTP binding protein Cdc42	162	60
1320	gi15072535	Schizophyllum commune	small GTPase CDC42	162	60
1321	AAE02058	Homo sapiens	Human four disulfide core domain (FDCD)-containing protein.	511	43
1321	gi12655452	Homo sapiens	keratin associated protein 4.7	492	43
1321	gi200964	Mus musculus	serine 2 ultra high sulfur protein	481	42

Table 2B

SEQ ID	Hit ID	Species	Description	S score	% Identity
1322	ABB12490	Homo sapiens	Human bone marrow expressed protein SEQ ID NO: 329.	169	72
1323	AAM39144	Homo sapiens	Human polypeptide SEQ ID NO 2289.	378	92
1323	gi5921473	Homo sapiens	G8 protein	378	92
1323	AAM40930	Homo sapiens	Human polypeptide SEQ ID NO 5861.	370	91
1324	gi18446967	Drosophila melanogaster	AT14419p	70	29
1325	gi15277229	Homo sapiens	Homologue to Drosophila photoreceptor protein calphotin	76	34
1325	gi1136400	Homo sapiens	similar to Drosophila photoreceptor cell-specific protein, calphotin.	76	34
1327	AAU07343	Homo sapiens	1-aminocyclopropane carboxylate (ACPC) synthase #12.	262	38
1327	AAU91279	Homo sapiens	Human NOV3a protein.	259	33
1327	gi313720	Ovis aries	KAP5.4 keratin protein	177	26
1328	AAY08325	Homo sapiens	Human granulysin P520 active fragment.	316	75
1328	AAW59874	Homo sapiens	Amino acid sequence of the cDNA clone CAT-1 (HTXET53).	316	75
1328	AAR23732	Homo sapiens	Gene 519 cDNA derived peptide.	316	75
1329	AAM41252	Homo sapiens	Human polypeptide SEQ ID NO 6183.	345	43
1329	AAM39466	Homo sapiens	Human polypeptide SEQ ID NO 2611.	345	43
1329	gi200964	Mus musculus	serine 2 ultra high sulfur protein	342	49
1330	gi13937769	Homo sapiens	Similar to RIKEN cDNA 1200013F24 gene	1256	100
1330	gi7582294	Homo sapiens	BM-011	781	98
1330	AAG67014	Homo sapiens	Human sperm-specific protein EM1, EM6-48.	249	30
1331	gi14718451	Homo sapiens	sialic acid-binding lectin 11	793	70
1331	gi19716086	Homo sapiens	Sialic acid-binding Ig-like lectin Siglec-12	793	70
1331	AAU29082	Homo sapiens	Human PRO polypeptide sequence #59.	551	50
1332	ABP41951	Homo sapiens	Human ovarian antigen HDABR73, SEQ ID NO:3083.	848	98
1332	AAB43821	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1266.	848	98
1332	AAB14201	Homo sapiens	Human placental bikunin protein fragment # 16.	848	98
1333	AAB93164	Homo sapiens	Human protein sequence SEQ ID NO:12091.	2165	98
1333	AAM93693	Homo sapiens	Human polypeptide, SEQ ID NO: 3604.	2159	100
1333	ABB50204	Homo sapiens	Human transcription factor TRFX-55.	1206	57
1334	gi12804907	Homo sapiens	Similar to metaxin 1	1512	100
1334	gi2564913	Homo sapiens	metaxin	1470	90
1334	gi18606009	Mus musculus	metaxin	1333	81
1335	ABB89371	Homo sapiens	Human polypeptide SEQ ID NO 1747.	487	100
1335	ABB90319	Homo sapiens	Human polypeptide SEQ ID NO	381	83

Table 2B

263

SEQ ID	Hit ID	Species	Description	S score	% Identity
			2695.		
1335	ABP61852	Homo sapiens	Human polypeptide SEQ ID NO 206.	381	83
1336	AAB18456	Homo sapiens	A human TANGO 216 polypeptide clone.	2257	99
1336	AAB18447	Homo sapiens	Amino acid sequence of human TANGO 216 polypeptide.	2257	99
1336	AAB18457	Homo sapiens	A human TANGO 216 polypeptide clone.	2254	99
1337	AAB18456	Homo sapiens	A human TANGO 216 polypeptide clone.	2257	99
1337	AAB18447	Homo sapiens	Amino acid sequence of human TANGO 216 polypeptide.	2257	99
1337	AAB18457	Homo sapiens	A human TANGO 216 polypeptide clone.	2254	99
1338	AAY86303	Homo sapiens	Human secreted protein HOGCK20, SEQ ID NO:218.	2382	88
1338	AAY86333	Homo sapiens	Human secreted protein HOGCK20, SEQ ID NO:248.	2215	87
1338	AAB65254	Homo sapiens	Human PRO1379 (UNQ716) protein sequence SEQ ID NO:340.	2117	96
1339	gi20072551	Mus musculus	RIKEN cDNA 4930511J11 gene	412	43
1339	gi12836893	Gallus gallus	IPR328-like protein	150	29
1339	gi17974542	Homo sapiens	voltage-dependent calcium channel gamma-8 subunit	149	25
1340	gi20072551	Mus musculus	RIKEN cDNA 4930511J11 gene	420	45
1340	gi17974542	Homo sapiens	voltage-dependent calcium channel gamma-8 subunit	147	25
1340	gi12836893	Gallus gallus	IPR328-like protein	147	29
1341	AAG89353	Homo sapiens	Human secreted protein, SEQ ID NO: 473.	692	100
1341	ABB11882	Homo sapiens	Human transmembrane protein homologue, SEQ ID NO:2252.	692	100
1341	AAW85737	Homo sapiens	Polypeptide with transmembrane domain.	692	100
1342	ABB12032	Homo sapiens	Human SIGP 2328134 homologue, SEQ ID NO:2402.	1202	82
1342	AAY21851	Homo sapiens	Human signal peptide-contianing protein (SIGP) (clone ID 2328134).	1202	82
1342	gi4101574	Homo sapiens	54TMp	1196	81
1343	gi3002925	Homo sapiens	T cell receptor beta chain	1658	100
1343	AAE13850	Homo sapiens	Human lung tumour-specific N-terminal protein 14F10.	1526	94
1343	AAE13848	Homo sapiens	Human lung tumour-specific T cell receptor beta chain.	1526	94
1344	gi14973269	Streptococcus pneumoniae TIGR4	cell wall surface anchor family protein	413	19
1344	gi560649	Neocallimastix patriciarum	Xylanase B; XYLB	243	19
1344	gi13094677	Mus musculus	ribosome receptor isoform mRRp61	240	22
1345	AAY07751	Homo sapiens	Human secreted protein fragment encoded from gene 8.	293	100
1345	gi1142588	Trypanosoma brucei	CR3	79	42
1345	gi3037018	Bodo saltans	NADH dehydrogenase subunit 5	78	35

Table 2B
264

SEQ ID	Hit ID	Species	Description	S score	% Identity
1346	gi18857903	Homo sapiens	TCBA1	867	100
1346	AAG78000	Homo sapiens	Human actin 14.	663	100
1346	ABB89045	Homo sapiens	Human polypeptide SEQ ID NO 1421.	644	98
1347	gi9837433	Homo sapiens	sialic acid binding immunoglobulin-like lectin 8 long splice variant	2206	88
1347	AAW94995	Homo sapiens	SAF-2 polypeptide.	2031	93
1347	gi6980022	Homo sapiens	siglec SAF2	2031	93
1348	gi15451469	Homo sapiens	siglec-like protein splice variant-1	2689	99
1348	gi15217166	Homo sapiens	sialic acid-binding Ig-like lectin 10	2682	99
1348	gi14164613	Homo sapiens	sialic acid binding immunoglobulin-like lectin 10	2356	98
1349	AAU76036	Homo sapiens	Human sugar transporter-1 (HST-1) protein sequence.	1496	89
1349	AAB60112	Homo sapiens	Human transport protein TPPT-32.	775	100
1349	AAB61903	Homo sapiens	Atherosclerosis-associated polypeptide.	445	38
1350	ABB06115	Homo sapiens	Human NS protein sequence SEQ ID NO:207.	357	97
1350	AAY76219	Homo sapiens	Human secreted protein encoded by gene 96.	336	94
1350	gi2906006	Homo sapiens	WASP interacting protein	125	30
1351	AAB08767	Homo sapiens	A human leukocyte and blood related protein (LBAP).	87	27
1351	ABB89384	Homo sapiens	Human polypeptide SEQ ID NO 1760.	86	28
1351	gi576631	Torpedo marmorata	14 kDa transmembrane protein	86	32
1352	AAE16765	Homo sapiens	Human transporter and ion channel-2 (TRICH-2) protein.	312	96
1352	gi7576452	Homo sapiens	potent brain type organic ion transporter	159	37
1352	AAY53009	Homo sapiens	Human secreted protein clone fh149_12 protein sequence SEQ ID NO:24.	153	36
1353	AAU83670	Homo sapiens	Human PRO protein, Seq ID No 158.	2566	99
1353	ABB84896	Homo sapiens	Human PRO1309 protein sequence SEQ ID NO:160.	2566	99
1353	ABB95502	Homo sapiens	Human angiogenesis related protein PRO1309 SEQ ID NO: 160.	2566	99
1354	AAM93665	Homo sapiens	Human polypeptide, SEQ ID NO: 3544.	498	40
1354	AAU29109	Homo sapiens	Human PRO polypeptide sequence #86.	498	40
1354	AAU27785	Homo sapiens	Human full-length polypeptide sequence #110.	498	40
1355	AAB87570	Homo sapiens	Human PRO1268.	603	100
1355	AAU29173	Homo sapiens	Human PRO polypeptide sequence #150.	603	100
1355	AAY78808	Homo sapiens	Hydrophobic domain containing protein clone HP10537 protein sequence.	603	100
1356	gi21518639	Homo sapiens	TSLC1-like 2	1991	97
1356	gi19068139	Mus musculus	membrane glycoprotein	1970	96
1356	AAM78418	Homo sapiens	Human protein SEQ ID NO 1080.	1905	97

Table 2B

SEQ ID	Hit ID	Species	Description	S score	% Identity
1357	AAY49573	Homo sapiens	Human CLA-1 protein sequence.	2503	94
1357	gi397607	Homo sapiens	CLA-1	2503	94
1357	ABB12012	Homo sapiens	Human SR-BI class B scavenger homologue, SEQ ID NO:2382.	2490	94
1358	gi854065	Human herpesvirus 6	U88	340	31
1358	gi21928439	Homo sapiens	seven transmembrane helix receptor	299	35
1358	AAB95124	Homo sapiens	Human protein sequence SEQ ID NO:17122.	277	30
1359	AAE05302	Homo sapiens	Human TANGO 457 protein.	1518	96
1359	AAE05303	Homo sapiens	Human mature TANGO 457 protein.	1394	96
1359	AAE05305	Homo sapiens	Human TANGO 457 protein cytoplasmic domain.	1260	100
1360	gi20799661	Mus musculus	mucolipin-2	2020	75
1360	gi20987535	Mus musculus	RIKEN cDNA 3300002C04 gene	2017	75
1360	gi19072754	Homo sapiens	mucolipin-3	1406	53
1361	AAE04122	Homo sapiens	Human gene 23 encoded secreted protein HE8OK73, SEQ ID NO:108.	210	61
1361	AAE04169	Homo sapiens	Human gene 23 encoded secreted protein HE8OK73, SEQ ID NO:158.	203	60
1361	AAG00392	Homo sapiens	Human secreted protein, SEQ ID NO: 4473.	112	43
1362	AAY27853	Homo sapiens	Human secreted protein encoded by gene No. 101.	274	94
1362	gi21740560	Oryza sativa	OSJNBa0033G16.10	69	47
1362	gi403081	Culex pipiens	reverse transcriptase	66	32
1363	AAM39421	Homo sapiens	Human polypeptide SEQ ID NO 2566.	4775	86
1363	gi17016967	Homo sapiens	NUANCE	4775	86
1363	gi17861384	Homo sapiens	nesprin-2 gamma	4775	86
1364	AAB37381	Homo sapiens	Human secreted protein #10 encoded by cDNA #34.	347	98
1364	AAB95854	Homo sapiens	Human protein sequence SEQ ID NO:18912.	70	37
1365	ABB90157	Homo sapiens	Human polypeptide SEQ ID NO 2533.	136	53
1365	AAW29654	Homo sapiens	Human secreted protein DM406_1.	136	53
1365	gi22328096	Homo sapiens	LOC145053	136	48
1366	AAU76873	Homo sapiens	Human CRF-like protein LP231.	1021	91
1366	ABB53290	Homo sapiens	Human polypeptide #30.	953	65
1366	gi10566471	Mus musculus	Gliacolin	944	65
1367	gi2585988	Homo sapiens	ribonuclease k6 precursor	700	87
1367	gi18088595	Homo sapiens	ribonuclease, RNase A family, k6	700	87
1367	gi2745750	Pan troglodytes	ribonuclease k6 precursor	695	86
1368	AAE09651	Homo sapiens	Human gene 13 encoded lipid metabolism protein HTJNI73, SEQ ID NO:45.	484	98
1368	AAG64355	Homo sapiens	Human lambda crystallin.	400	97
1368	ABB89956	Homo sapiens	Human polypeptide SEQ ID NO 2332.	381	98
1369	AAM25241	Homo sapiens	Human protein sequence SEQ ID NO:756.	484	95
1369	AAE09651	Homo sapiens	Human gene 13 encoded lipid metabolism protein HTJNI73, SEQ ID NO:45.	352	100

Table 2B

SEQ ID	Hit ID	Species	Description	S score	% Identity
1369	AAG64355	Homo sapiens	Human lambda crystallin.	268	98
1371	gi21685525	Homo sapiens	similar to chloride channel protein SW:CICH_TORMA	4250	94
1371	gi6653659	Oryctolagus cuniculus	chloride channel CLC-6	4155	91
1371	ABB11826	Homo sapiens	Human Cl channel homologue, SEQ ID NO:2196.	4100	91
1372	gi21928599	Homo sapiens	seven transmembrane helix receptor	749	100
1372	AAG71967	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1648.	725	97
1372	AAG71962	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1643.	714	95
1373	ABG45325	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 34990.	278	100
1373	AAM35993	Homo sapiens	Peptide #10030 encoded by probe for measuring placental gene expression.	278	100
1373	AAM20725	Homo sapiens	Peptide #7159 encoded by probe for measuring cervical gene expression.	278	100
1374	AAU12071	Homo sapiens	Human PHT1 variant protein from Caco-2 cells.	920	100
1374	AAU12070	Homo sapiens	Human PHT1 variant protein from BeWo cells.	920	100
1374	AAU12069	Homo sapiens	Human PHT1 protein splice variant.	920	100
1375	ABB77396	Homo sapiens	Human cathepsin L.	1597	87
1375	AAW47031	Homo sapiens	Human procathepsin L.	1597	87
1375	gi29715	Homo sapiens	pro-(cathepsin L)	1597	87
1376	AAU11764	Homo sapiens	Human alpha1a adrenergic receptor-like GPCR.	2554	98
1376	AAG64126	Homo sapiens	Human G protein-coupled receptor GPRv72.	2554	98
1376	AAU04369	Homo sapiens	Human G-protein coupled receptor, hRUP15.	2554	98
1377	gi18676524	Homo sapiens	FLJ00159 protein	164	52
1377	gi21392066	Drosophila melanogaster	RE04357p	139	34
1377	AAB94312	Homo sapiens	Human protein sequence SEQ ID NO:14783.	82	38
1378	ABB08011	Homo sapiens	Human secretin receptor-like GPCR.	2759	100
1378	AAU79494	Homo sapiens	Human G protein-coupled receptor TGR18-3.	2582	97
1378	AAE18652	Homo sapiens	Human G-protein coupled receptor (GCREC-13).	2569	96
1379	AAY30735	Homo sapiens	Amino acid sequence of a human secreted protein.	280	100
1379	AAY40092	Homo sapiens	Peptide sequence derived from a human secreted protein.	65	100
1379	gi17511709	Homo sapiens	down-regulated by Ctnnb1, a	65	26
1380	gi2459682	Homo sapiens	MAGE-B4	883	54
1380	gi3687196	Homo sapiens	MAGE-B1	864	54
1380	gi4033512	Homo sapiens	DAM10=DSS-AHC critical interval MAGE superfamily protein	863	54
1381	AAE21804	Homo sapiens	Human TREK2 protein.	2791	100
1381	gi19716290	Homo sapiens	potassium channel TREK2 splice variant b	2784	99

Table 2B

SEQ ID	Hit ID	Species	Description	S score	% Identity
1381	AAO14193	Homo sapiens	Human transporter and ion channel TRICH-10.	2747	98
1382	ABB11297	Homo sapiens	Human Coxsackie adenovirus receptor homologue, SEQ ID NO:1667.	699	97
1382	gi14279421	Danio rerio	coxsackievirus and adenovirus receptor-like protein	366	32
1382	ABB84956	Homo sapiens	Human PRO5723 protein sequence SEQ ID NO:280.	355	33
1383	AAU99321	Homo sapiens	Human protooncogene KG-19 protein.	753	100
1383	gi18466808	Homo sapiens	cervical cancer 1 proto-oncogene-binding protein KG19	753	100
1383	gi21961229	Homo sapiens	BRI3 binding protein	753	100
1384	AAM06866	Homo sapiens	Human foetal protein, SEQ ID NO: 1074.	1131	98
1384	gi15099951	Mus musculus	diacylglycerol acyltransferase 2	953	51
1384	ABB75677	Homo sapiens	Breast protein-eukaryotic conserved gene 1 (BSTP-ECG1) protein.	945	50
1385	AAG68335	Homo sapiens	Human CSP2 protein SEQ ID NO:4.	1354	99
1385	gi19525540	Homo sapiens	lymphocyte effector toxicity activation ligand	1330	98
1385	AAY36071	Homo sapiens	Extended human secreted protein sequence, SEQ ID NO. 456.	1252	92
1386	AAY94527	Homo sapiens	Human statherin protein.	260	83
1386	gi338611	Homo sapiens	statherin precurser	260	83
1386	gi338508	Homo sapiens	statherin protein	260	83
1387	AAB94721	Homo sapiens	Human protein sequence SEQ ID NO:15739.	1011	100
1387	gi17384256	Homo sapiens	mucin 5	103	28
1387	gi1334899	Human herpesvirus 4	BDLF3 late reading frame 9xNXT/S	100	25
1388	ABP41842	Homo sapiens	Human ovarian antigen HTFML39, SEQ ID NO:2974.	918	98
1388	AAB73302	Homo sapiens	Human cyclophilin B (CypB) C-terminal deletion mutant, CypB-AIAKE.	918	98
1388	AAB73301	Homo sapiens	Human cyclophilin B (CypB).	918	98
1389	AAE07112	Homo sapiens	Human gene 6 encoded secreted protein fragment, SEQ ID NO:129.	2470	99
1389	AAM93449	Homo sapiens	Human polypeptide, SEQ ID NO: 3098.	2378	99
1389	AAM93823	Homo sapiens	Human polypeptide, SEQ ID NO: 3881.	2374	99
1390	gi16589056	Homo sapiens	type II gonadotropin-releasing hormone receptor	1376	94
1390	gi19697896	Homo sapiens	GnRH receptor II 5TM	1365	93
1390	AAU10819	Homo sapiens	Human Type II GnRH-R splice variant 1 protein #2.	1363	93
1391	gi16359249	Mus musculus	RIKEN cDNA 1300010M03 gene	2226	91
1391	AAM93450	Homo sapiens	Human polypeptide, SEQ ID NO: 3100.	587	34
1391	ABB89832	Homo sapiens	Human polypeptide SEQ ID NO 2208.	522	39
1392	AAE04896	Homo sapiens	Human transporter and ion channel-9	825	100

Table 2B

SEQ ID	Hit ID	Species	Description	S score	% Identity
			(TRICH-9) protein.		
1392	AAE04899	Homo sapiens	Human transporter and ion channel-12 (TRICH-12) protein.	688	52
1392	AAE06616	Homo sapiens	Human protein having hydrophobic domain, HP10735.	688	52
1393	gi21928487	Homo sapiens	seven transmembrane helix receptor	1558	100
1393	AAG72603	Homo sapiens	Human OR-like polypeptide query sequence, SEQ ID NO: 2284.	1433	89
1393	AAG71515	Homo sapiens	Human olfactory receptor polypeptide, SEQ ID NO: 1196.	1433	89
1394	ABB89241	Homo sapiens	Human polypeptide SEQ ID NO 1617.	195	57
1394	AAB08894	Homo sapiens	Human secreted protein sequence encoded by gene 4 SEQ ID NO:51.	165	59
1394	gi21070180	Danio rerio	envelope protein	111	48
1395	gi15157307	Agrobacterium tumefaciens str. C58 (Cereon)	AGR_C_3928p	85	21
1395	gi9295309	frog adenovirus 1	pIIIa protein	82	41
1395	ABB08204	Homo sapiens	Human lipid metabolism enzyme-4 (LME-4).	76	27
1397	AAG65914	Homo sapiens	Amino acid sequence of GSK gene Id 27142.	5760	97
1397	gi19570398	Homo sapiens	hDDM36	5760	97
1397	AAU77405	Homo sapiens	Human NOV1 protein, homologue of NOPE/PUNC Ig proteins.	5619	95
1398	gi15292481	Drosophila melanogaster	SD03655p	1165	59
1398	AAB88372	Homo sapiens	Human membrane or secretory protein clone PSEC0108.	881	67
1399	ABB07553	Homo sapiens	BSTP-CAD fragment determined from I.M.A.G.E clone 52071.	91	29
1399	ABB07552	Homo sapiens	Human BSTP-CAD polypeptide.	91	29
1399	gi21959343	Yersinia pestis KIM	basal-body MS (membrane and supramembrane)-ring and collar protein	69	35
1401	AAB95124	Homo sapiens	Human protein sequence SEQ ID NO:17122.	148	34
1401	gi854065	Human herpesvirus 6	U88	139	40
1401	AAO09309	Homo sapiens	Human polypeptide SEQ ID NO 23201.	137	26
1402	AAE01332	Homo sapiens	Human gene 18 encoded secreted protein fragment, SEQ ID NO:197.	222	100
1402	AAE01299	Homo sapiens	Human gene 18 encoded secreted protein HFIIN69, SEQ ID NO:162.	222	100
1402	AAE01249	Homo sapiens	Human gene 18 encoded secreted protein HFIIN69, SEQ ID NO:111.	222	100
1403	AAM06589	Homo sapiens	Human foetal protein, SEQ ID NO: 320.	237	100
1404	AAU10510	Homo sapiens	Human leukocyte immunoglobulin receptor-like (LIR-like) protein #8.	1411	100
1404	AAU10511	Homo sapiens	Human leukocyte immunoglobulin receptor-like (LIR-like) protein #11.	595	89

Table 2B

269

SEQ ID	Hit ID	Species	Description	S score	% Identity
1404	AAO09486	Homo sapiens	Human polypeptide SEQ ID NO 23378.	486	98
1406	gi20380511	Mus musculus	RIKEN cDNA 3110007F17 gene	293	33
1406	gi13377867	Gallus gallus	claudin-3	107	24
1406	gi15553375	Danio rerio	claudin h	106	23
1407	ABB90122	Homo sapiens	Human polypeptide SEQ ID NO 2498.	1029	84
1407	AAY32204	Homo sapiens	Human receptor molecule (REC) encoded by Incyte clone 2132179.	1029	84
1407	AAY78801	Homo sapiens	Hydrophobic domain containing protein clone HP00631 amino acid sequence.	1029	84
1408	gi13543940	Homo sapiens	Similar to RIKEN cDNA 2610017G09 gene	2229	96
1408	AAB12138	Homo sapiens	Hydrophobic domain protein isolated from HT-1080 cells.	2218	96
1408	AAB88466	Homo sapiens	Human membrane or secretory protein clone PSEC0260.	2212	96
1409	AAM38643	Homo sapiens	Human polypeptide SEQ ID NO 1788.	3168	99
1409	AAU81961	Homo sapiens	Human PRO943.	2441	98
1409	AAU77790	Homo sapiens	Human PRO943 protein.	2441	98
1410	AAU78083	Homo sapiens	Human interleukin 22 receptor (IL-22R) protein sequence.	1699	100
1410	AAU76905	Homo sapiens	Human Z-cytor-11 protein.	1699	100
1410	AAB87607	Homo sapiens	Human PRO20233.	1699	100
1411	AAO20532	Homo sapiens	Protein of the human TFM-2 gene sequence.	777	100
1411	AAE21184	Homo sapiens	Human TRICH-28 protein.	777	100
1411	gi18640047	Homo sapiens	aromatic amino acid transporter	777	100
1412	AAE13280	Homo sapiens	Human transporters and ion channels (TRICH)-7.	1317	78
1412	AAB47271	Homo sapiens	hOAT1.	627	41
1412	AAY44278	Homo sapiens	Human organic anion transporter.	627	41
1413	AAM79977	Homo sapiens	Human protein SEQ ID NO 3623.	100	31
1413	gi2764507	Locusta migratoria	nicotinic acetylcholine receptor, alpha1 subunit	100	36
1413	gi1766077	Gallus gallus	winged helix protein CWH-3	100	37
1414	ABP41590	Homo sapiens	Human ovarian antigen HAZAR95, SEQ ID NO:2722.	1522	100
1414	AAB43682	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1127.	1522	100
1414	gi5931730	Homo sapiens	phosphate carrier	1522	100
1415	gi1764015	Ciona intestinalis	COS41.5	314	42
1415	AAM42167	Homo sapiens	Human polypeptide SEQ ID NO 7098.	272	30
1415	AAE03484	Homo sapiens	Human gene 12 encoded secreted protein HETHW90, SEQ ID NO:167.	250	29
1416	AAB82315	Homo sapiens	Human immunoglobulin receptor isoform IRTA2c.	1130	88
1416	gi15277746	Homo sapiens	Fc receptor-like protein 5	1130	88
1416	gi13591714	Homo sapiens	immunoglobulin superfamily receptor translocation associated protein 2c	1130	88

Table 2B

270

SEQ ID	Hit ID	Species	Description	S score	% Identity
1417	AAY27182	Homo sapiens	Human RNF5 polypeptide.	877	90
1417	AAW69601	Homo sapiens	Human zinc binding protein ZB-2.	877	90
1417	gi13366064	Homo sapiens	HsRma1	877	90
1418	AAE17493	Homo sapiens	Human secretion and trafficking protein-2 (SAT-2).	1446	100
1418	ABG60227	Homo sapiens	Human Mitsugumin29-like protein NOV3a.	1384	97
1418	AAU96848	Homo sapiens	Human NOV3a protein variant.	1378	97
1419	gi13452508	Mus musculus	claudin 14	371	40
1419	AAU77764	Homo sapiens	Tumour associated antigenic target polypeptide (TAT) 155.	370	40
1419	AAU29200	Homo sapiens	Human PRO polypeptide sequence #177.	370	40
1420	ABG34068	Homo sapiens	Human Pro peptide #39.	697	87
1420	gi21205866	Homo sapiens	T-cell activation leucine repeat-rich protein; TA-LRRP	697	87
1420	AAE17132	Homo sapiens	Human adenylyl and guanylyl cyclase (ADGUC)-4.	505	84
1421	AAU78091	Homo sapiens	Human nonerythroid Rh glycoprotein RhBG protein sequence.	1891	88
1421	gi15718471	Homo sapiens	Rh type B glycoprotein	1891	88
1421	gi14346006	Pan troglodytes	Rh type B glycoprotein	1886	88
1422	AAM00949	Homo sapiens	Human bone marrow protein, SEQ ID NO: 425.	215	46
1422	gi14209836	Mus musculus	ATP-binding cassette transporter sub-family A member 7	175	40
1422	AAO14210	Homo sapiens	Human transporter and ion channel TRICH-27.	174	40
1423	ABB84987	Homo sapiens	Human PRO6006 protein sequence SEQ ID NO:342.	718	99
1423	ABG34059	Homo sapiens	Human Pro peptide #30.	718	99
1423	ABB95593	Homo sapiens	Human angiogenesis related protein PRO6006 SEQ ID NO: 342.	718	99
1424	gi18539467	Homo sapiens	nucleolar RNA-associated protein beta	3851	98
1424	gi18539465	Homo sapiens	nucleolar RNA-associated protein alpha	3851	98
1424	gi20988377	Homo sapiens	nucleolar RNA-associated protein	3823	98
1425	AAE15635	Homo sapiens	Human G-protein coupled receptor-5 (GCREC-5) protein.	499	92
1425	AAB66272	Homo sapiens	Human TANGO 378 SEQ ID NO: 29.	499	92
1425	AAE03406	Homo sapiens	Human secreted protein fragment, SEQ ID NO:64.	499	92
1426	gi18676704	Homo sapiens	FLJ00251 protein	4114	99
1426	gi433383	Tripneustes gratilla	dynein heavy chain isotype 5A	406	24
1426	gi6706264	Leishmania major	dynein heavy chain	405	23
1427	AAE23980	Homo sapiens	Human LP220 secreted protein.	2964	99
1427	AAB70072	Homo sapiens	Human secreted protein #11.	2475	99
1427	AAE17484	Homo sapiens	Human leucine-rich repeat-8 (ZLRR8) protein #2.	2407	100
1428	ABB97996	Homo sapiens	Human severing stimulating factor Kda subunit 86.35.	415	39

Table 2B

271

SEQ ID	Hit ID	Species	Description	S score	% Identity
1428	gi21618514	Homo sapiens	Similar to oxidation resistance 1	415	39
1428	gi13540300	Mus musculus	nucleolar protein C7B	408	34
1429	ABB90382	Homo sapiens	Human polypeptide SEQ ID NO 2758.	352	63
1429	ABP41785	Homo sapiens	Human ovarian antigen HCFCS40, SEQ ID NO:2917.	352	63
1429	AAM40391	Homo sapiens	Human polypeptide SEQ ID NO 3536.	131	32
1430	AAY07751	Homo sapiens	Human secreted protein fragment encoded from gene 8.	293	100
1430	gi1142588	Trypanosoma brucei	CR3	78	43
1430	gi3037018	Bodo saltans	NADH dehydrogenase subunit 5	76	33
1431	ABB04471	Homo sapiens	Human endoprotease 31.	940	100
1431	AAM93525	Homo sapiens	Human polypeptide, SEQ ID NO: 3259.	243	36
1431	ABB89344	Homo sapiens	Human polypeptide SEQ ID NO 1720.	219	29
1432	AAB88388	Homo sapiens	Human membrane or secretory protein clone PSEC0131.	306	43
1432	gi20810493	Homo sapiens	Similar to RIKEN cDNA 2810417M05 gene	306	43
1432	AAE21272	Homo sapiens	Human gene 16 encoded secreted protein fragment, SEQ ID NO:138.	207	55
1433	AAB88388	Homo sapiens	Human membrane or secretory protein clone PSEC0131.	308	42
1433	gi20810493	Homo sapiens	Similar to RIKEN cDNA 2810417M05 gene	308	42
1433	AAE21272	Homo sapiens	Human gene 16 encoded secreted protein fragment, SEQ ID NO:138.	209	54
1434	ABP43139	Homo sapiens	Human ovarian antigen HVVBT60, SEQ ID NO:4271.	235	77
1434	ABP42815	Homo sapiens	Human ovarian antigen HPCOO95, SEQ ID NO:3947.	235	77
1434	ABP42409	Homo sapiens	Human ovarian antigen HOCOC38, SEQ ID NO:3541.	235	77
1435	gi19171162	Homo sapiens	ventrhoid transmembrane protein	1873	99
1435	AAE14571	Homo sapiens	Human rhomboid related protein, RRP3.	1869	99
1435	gi19171160	Mus musculus	ventrhoid transmembrane protein	1800	94
1436	gi7106866	Homo sapiens	HSPC238	237	56
1436	AAM92052	Homo sapiens	Human digestive system antigen SEQ ID NO: 1401.	235	72
1436	gi13542707	Mus musculus	RIKEN cDNA 2500002L14 gene	195	47
1437	AAE18212	Homo sapiens	Human MOL4 protein.	6140	99
1437	AAG68293	Homo sapiens	Human semaphorin G-like NHP protein SEQ ID NO:10.	6134	99
1437	AAG68294	Homo sapiens	Human semaphorin G-like NHP protein SEQ ID NO:12.	6034	98
1438	AAU95381	Homo sapiens	Human calcium transport protein CaTrF2E11.	4607	99
1438	AAY96479	Homo sapiens	Human vanilloid receptor 3.	4607	99
1438	gi21690507	unidentified	CaTrF2E11	4607	99
1439	gi11055322	Homo sapiens	vanilloid receptor-related osmotically activated channel	3324	100

Table 2B

272

SEQ ID	Hit ID	Species	Description	S score	% Identity
1439	AAU74935	Homo sapiens	Amino acid sequence of human vanilloid receptor-like protein 2a (VRL-2a).	3318	99
1439	ABB79191	Homo sapiens	Human VR4 protein SEQ ID NO:2.	3318	99
1440	gi14574118	Caenorhabditis elegans	C. elegans DPY-19 protein (corresponding sequence F22B7.10)	76	24
1440	AAU83621	Homo sapiens	Human PRO protein, Seq ID No 60.	74	24
1440	AAO05826	Homo sapiens	Human polypeptide SEQ ID NO 19718.	70	26
1441	gi4235228	Mus musculus	leucine zipper-EF-hand containing transmembrane protein 1	497	59
1441	gi15680275	Homo sapiens	Similar to leucine zipper-EF-hand containing transmembrane protein 1	494	60
1441	gi18204589	Homo sapiens	leucine zipper-EF-hand containing transmembrane protein 1	494	60
1442	AAE17482	Homo sapiens	Human leucine-rich repeat-7 (ZLRR7) protein.	1107	100
1442	ABB11242	Homo sapiens	Human SLIT-2 homologue, SEQ ID NO:1612.	653	99
1442	AAB07469	Homo sapiens	A human leucine-rich repeat protein designated Zlrr3.	443	36
1443	AAU97218	Homo sapiens	Human G protein-coupled receptor, TGR25.	1645	87
1443	AAE23415	Homo sapiens	Human G-protein coupled receptor-7 (GCREC-7).	1645	87
1444	gi15487341	Escherichia coli	macrolide-specific ABC-type efflux carrier	697	91
1444	gi4062463	Escherichia coli	ABC transporter probable ATP-binding subunit homolog	697	91
1445	gi17978985	Arabidopsis thaliana	At1g43690/F2J6_4	75	22
1445	gi4239789	Treponema maltophilum	major sheath protein	74	23
1446	gi21426922	Homo sapiens	PELP1	4113	95
1446	AAW31185	Homo sapiens	Human p160 polypeptide 160.1.	3176	87
1446	gi3168604	Homo sapiens	proline and glutamic acid rich nuclear protein isoform	1641	99
1447	AAB94495	Homo sapiens	Human protein sequence SEQ ID NO:15188.	68	36
1447	AAG67254	Homo sapiens	Amino acid sequence of a human liver-associated gene.	68	36
1447	gi21489412	Bombus hypocrita sapporoensis	cytochrome oxidase 1	66	35
1448	AAB80418	Homo sapiens	Gene #4 associated peptide #1.	1998	100
1448	AAB65162	Homo sapiens	Human PRO290 (UNQ253) protein sequence SEQ ID NO:33.	1972	100
1448	AAY66639	Homo sapiens	Membrane-bound protein PRO290.	1972	100
1449	gi16117372	Macropodid herpesvirus 1	ICP4	95	27
1449	gi4063766	Aspergillus nidulans	chitinase	92	24
1449	gi15277229	Homo sapiens	Homologue to Drosophila photoreceptor protein calphotin	89	31
1450	ABB09760	Homo sapiens	Amino acid sequence of human	1029	100

Table 2B

273

SEQ ID	Hit ID	Species	Description	S score	% Identity
			hearing defect related protein 38.39.		
1450	AAU27660	Homo sapiens	Human protein AFP671052.	889	100
1450	AAG74151	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:4915.	748	100
1452	AAE21175	Homo sapiens	Human TRICH-19 protein.	1041	93
1452	gi15559050	Ethmostigmus rubripes	ADP-ATP translocator	733	68
1452	gi7542476	Xenopus laevis	adenine nucleotide translocase	702	67
1454	gi4929597	Homo sapiens	CGI-64 protein	1879	96
1454	gi6995987	Homo sapiens	mitochondrial carrier homolog 1 isoform a	1818	99
1454	gi6995989	Homo sapiens	mitochondrial carrier homolog 1 isoform b	1790	95
1455	gi17225210	Podospora anserina	beta transducin-like protein HET-D2Y	247	25
1455	gi886024	Thermomonospora curvata	PkwA	239	29
1455	gi17131893	Nostoc sp. PCC 7120	WD-repeat protein	238	26
1456	AAB36840	Homo sapiens	Human insulin receptor-related receptor protein with signal peptide.	6736	98
1456	ABB11702	Homo sapiens	Human insulin receptor-related protein homologue, SEQ ID NO:2072.	6731	99
1456	AAB36836	Homo sapiens	Human insulin receptor-related receptor protein.	6731	99
1457	ABB11803	Homo sapiens	Human GPI-122 homologue, SEQ ID NO:2173.	6420	99
1457	AAY50125	Homo sapiens	Human glycophosphatidylinositol-anchored protein GPI-122.	6323	100
1457	AAB94751	Homo sapiens	Human protein sequence SEQ ID NO:15805.	5872	99
1458	AAU00023	Homo sapiens	Human activated T-lymphocyte associated sequence 2, ATLAS-2.	3623	99
1458	AAE04546	Homo sapiens	Human G-protein coupled receptor-2 (GCREC-2) protein.	3325	89
1458	gi19387136	Homo sapiens	PYRIN-containing APAF1-like protein 5	3316	89
1459	AAE14719	Homo sapiens	Human carbohydrate-associated protein (CARBAP)-1.	3132	99
1459	AAB92508	Homo sapiens	Human protein sequence SEQ ID NO:10631.	2742	100
1459	AAB95542	Homo sapiens	Human protein sequence SEQ ID NO:18155.	2687	99
1460	gi2960194	Human T-cell lymphotropic virus type 2b	rex	81	24
1460	gi404041	Human T-lymphotropic virus 2	rex protein	81	24
1460	gi348140	Human T-lymphotropic virus 2	rex	81	24
1461	gi1103953	Homo sapiens	MHC class I HLA-B*1523	71	28
1461	gi1815616	Homo sapiens	HLA-B-1521	71	28

Table 2B
274

SEQ ID	Hit ID	Species	Description	S score	% Identity
1461	gi17467060	Homo sapiens	MHC class I	71	28
1462	gi11066090	Homo sapiens	matrix metalloprotease MMP-27	1188	85
1462	AAU00469	Homo sapiens	Human TANGO 210 protein.	1185	85
1462	AAU12267	Homo sapiens	Human PRO5992 polypeptide sequence.	1185	85
1463	gi601948	Drosophila melanogaster	Inscuteable	132	23
1463	gi7291194	Drosophila melanogaster	CG11312-PA	132	23
1463	gi1657962	Drosophila melanogaster	Nem	123	24
1464	AAB45378	Homo sapiens	Human secreted protein sequence encoded by gene 38 SEQ ID NO:130.	433	96
1464	gi406058	Mus musculus	protein kinase	216	53
1464	AAE16277	Homo sapiens	Human kinase PKIN-23 protein.	213	53
1465	AAG00866	Homo sapiens	Human secreted protein, SEQ ID NO: 4947.	123	54
1466	AAY97293	Homo sapiens	Lipid associated protein (LIPAP) 3335404CD1.	2178	68
1466	AAM39997	Homo sapiens	Human polypeptide SEQ ID NO 3142.	1214	43
1466	AAB24231	Homo sapiens	Human vesicle associated protein 10 SEQ ID NO:10.	1214	43
1467	ABP41928	Homo sapiens	Human ovarian antigen H6EEO05, SEQ ID NO:3060.	922	96
1467	AAB94535	Homo sapiens	Human protein sequence SEQ ID NO:15273.	922	96
1467	AAM79530	Homo sapiens	Human protein SEQ ID NO 3176.	922	96
1468	AAB94336	Homo sapiens	Human protein sequence SEQ ID NO:14836.	694	77
1468	AAB97250	Homo sapiens	HOMO RNA cyclase 41 protein.	694	77
1468	gi12654401	Homo sapiens	Similar to RNA cyclase homolog	694	77
1469	ABB05645	Homo sapiens	Human thyroglobulin 38 protein SEQ ID NO:2.	273	98
1469	AAM89857	Homo sapiens	Human immune/haematopoietic antigen SEQ ID NO:17450.	81	43
1470	AAO04234	Homo sapiens	Human polypeptide SEQ ID NO 18126.	185	76
1470	AAM92673	Homo sapiens	Human digestive system antigen SEQ ID NO: 2022.	184	97
1470	gi65265	Xenopus laevis	a xenopus upstream binding factor	130	30
1471	ABB12219	Homo sapiens	Human secreted protein homologue, SEQ ID NO:2589.	182	97
1471	ABG60080	Homo sapiens	Human DITHP polypeptide #138.	153	82
1471	ABB90307	Homo sapiens	Human polypeptide SEQ ID NO 2683.	148	96
1472	AAO12550	Homo sapiens	Human polypeptide SEQ ID NO 26442.	255	62
1472	AAG03600	Homo sapiens	Human secreted protein, SEQ ID NO: 7681.	245	86
1472	gi7770239	Homo sapiens	PRO2831	136	71
1473	AAW49698	Homo sapiens	Human Notch3 protein.	99	55
1473	gi3065951	Homo sapiens	Notch3	99	55
1473	AAR67242	Homo sapiens	Huaman glial cell growth factor	96	42

Table 2B

275

SEQ ID	Hit ID	Species	Description	S score	% Identity
			heregulin segment E.		
1474	gi22002433	Homo sapiens	p150 target of rapamycin (TOR)-scaffold protein containing WD-repeats	323	54
1474	gi21979456	Homo sapiens	raptor	323	54
1474	gi22002435	Mus musculus	p150 target of rapamycin (TOR)-scaffold protein containing WD-repeats	318	53
1475	AAB38280	Homo sapiens	Human secreted protein sequence encoded by gene 20 SEQ ID NO:136.	289	96
1476	gi7160973	Homo sapiens	VNN3 protein	2254	87
1476	AAM40410	Homo sapiens	Human polypeptide SEQ ID NO 3555.	2249	87
1476	gi6102996	Mus musculus	Vanin-3	1857	71
1477	gi16877231	Homo sapiens	Similar to RIKEN cDNA 2700019D07 gene	997	100
1478	gi340201	Homo sapiens	voltage-dependent anion channel	479	74
1478	gi15277577	Homo sapiens	voltage-dependent anion channel 2	479	74
1478	gi5114261	Homo sapiens	voltage-dependent anion channel isoform 2	479	74
1479	ABB08511	Homo sapiens	Human protein FH2-13.	192	48
1479	AAB94622	Homo sapiens	Human protein sequence SEQ ID NO:15476.	131	69
1479	ABJ03741	Homo sapiens	Human ovary specific protein SEQ ID NO: 183.	128	37
1480	AAB93446	Homo sapiens	Human protein sequence SEQ ID NO:12690.	204	100
1480	AAM80227	Homo sapiens	Human protein SEQ ID NO 3873.	204	100
1480	AAM79243	Homo sapiens	Human protein SEQ ID NO 1905.	204	100
1482	AAW42095	Homo sapiens	Human Rab protein A (HRABA).	192	80
1482	gi1457954	Homo sapiens	Rab22b	192	80
1482	gi10179679	Homo sapiens	small GTPase RAB22B	192	80
1483	ABG62142	Homo sapiens	Human prostate specific polypeptide #75.	170	65
1483	AAE24060	Homo sapiens	Human prostate specific protein (PSP) #3.	170	65
1483	gi7959778	Homo sapiens	PRO1546	163	65
1484	AAU69407	Homo sapiens	Lung small cell carcinoma antigen #1.	586	85
1484	ABB03602	Homo sapiens	Human musculoskeletal system related polypeptide SEQ ID NO 1549.	215	69
1484	gi6979921	Drosophila melanogaster	RhoGTPase	159	32
1485	AAU99098	Homo sapiens	Human glycosyl transferase 47169.	391	67
1485	gi18676612	Homo sapiens	FLJ00205 protein	391	67
1485	gi14150450	Rattus norvegicus	UDP-GalNAc:polypeptide N-acetylgalactosaminyltransferase T9	343	60
1486	AAO11830	Homo sapiens	Human polypeptide SEQ ID NO 25722.	283	82
1486	AAO12132	Homo sapiens	Human polypeptide SEQ ID NO 26024.	280	81
1487	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:121.	1249	85

Table 2B

276

SEQ ID	Hit ID	Species	Description	S score	% Identity
1488	AAY27572	Homo sapiens	Human secreted protein encoded by gene No. 6.	390	50
1488	gi13560707	Homo sapiens	group XIII secreted phospholipase A2	389	50
1488	gi12698926	Mus musculus	group XIII secreted phospholipase A2	311	80
1489	gi2995442	Homo sapiens	UDPGal:GlcNAc b1,4 galactosyltransferase	1920	90
1489	gi4520136	Homo sapiens	beta-1,4-galactosyltransferase II	1920	90
1489	gi3132896	Homo sapiens	beta-1,4-galactosyltransferase	1877	88
1490	AAO11284	Homo sapiens	Human polypeptide SEQ ID NO 25176.	165	69
1490	AAO06074	Homo sapiens	Human polypeptide SEQ ID NO 19966.	164	63
1490	AAO02002	Homo sapiens	Human polypeptide SEQ ID NO 15894.	157	64
1491	AAB93371	Homo sapiens	Human protein sequence SEQ ID NO:12521.	487	98
1491	AAM41334	Homo sapiens	Human polypeptide SEQ ID NO 6265.	487	98
1491	AAM41333	Homo sapiens	Human polypeptide SEQ ID NO 6264.	487	98
1492	AAE19435	Homo sapiens	Human 27803 (a member of human adenylate kinase family).	341	65
1492	AAU29224	Homo sapiens	Human PRO polypeptide sequence #201.	197	57
1493	gi21410587	Homo sapiens	similar to RIKEN cDNA 2310041H06	818	100
1493	gi6855513	Gallus gallus	syndesmos	551	60
1493	gi18034388	Mus musculus	syndesmos	537	58
1494	gi20987486	Homo sapiens	similar to B cell phosphoinositide 3-kinase adaptor	805	92
1494	gi12082725	Mus musculus	B cell phosphoinositide 3-kinase adaptor	331	62
1494	gi12082811	Gallus gallus	B cell phosphoinositide 3-kinase adaptor	205	48
1495	AAB64482	Homo sapiens	Human secreted protein sequence encoded by gene 13 SEQ ID NO:120.	273	100
1495	AAB65921	Homo sapiens	Human secreted protein SEQ ID NO: 61.	273	100
1495	AAB95728	Homo sapiens	Human protein sequence SEQ ID NO:18606.	273	100
1496	gi56463	Rattus norvegicus	gp210 (AA 1-1886)	7172	72
1496	gi6650678	Mus musculus	nuclear pore membrane glycoprotein POM210	7114	71
1496	gi18676550	Homo sapiens	FLJ00172 protein	5038	95
1497	AAY40432	Homo sapiens	Amino acid sequence of vk65.15, a human VK gene fragment.	607	100
1497	AAW62185	Homo sapiens	Human DNA vkappa65.15 fragment.	607	100
1497	AAW41147	Homo sapiens	Human vkappa65.15 fragment.	607	100
1498	gi431857	Homo sapiens	delta 4-3-oxosteroid 5 beta-reductase	460	76
1498	gi11640835	Homo sapiens	5-beta steroid reductase	460	76
1498	gi5689216	Oryctolagus	delta4-3-oxosteroid 5beta-reductase	442	70

Table 2B

SEQ ID	Hit ID	Species	Description	S score	% Identity
		cuniculus			
1500	gi21748478	Homo sapiens	FLJ00264 protein	3399	99
1500	AAB93159	Homo sapiens	Human protein sequence SEQ ID NO:12081.	2209	64
1500	AAB58796	Homo sapiens	Breast and ovarian cancer associated antigen protein sequence SEQ ID 504.	1456	64
1502	AAB58202	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 540.	427	100
1502	AAU79340	Homo sapiens	Human caveolin-1 (Cav-1).	345	100
1502	AAE22092	Homo sapiens	Human caveolin-1 protein.	345	100
1503	gi3115996	Homo sapiens	dJ79C4.1.2 (Homeobox protein PMX-1 (PHOX1) isoform 2)	410	97
1503	gi3115995	Homo sapiens	dJ79C4.1.1 (Homeobox protein PMX-1 (PHOX1) isoform 1)	410	97
1503	gi460125	Mus musculus	homeobox protein	405	96
1504	gi8163762	Homo sapiens	membrane cofactor protein CD46 variant	639	83
1504	AAG75528	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6292.	635	82
1504	AAB58394	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 732.	635	82
1505	AAO21802	Homo sapiens	Lung-specific amino acid sequence SEQ ID No 113.	301	61
1505	AAO07848	Homo sapiens	Human polypeptide SEQ ID NO 21740.	161	89
1505	AAO09394	Homo sapiens	Human polypeptide SEQ ID NO 23286.	115	51
1506	AAB94891	Homo sapiens	Human protein sequence SEQ ID NO:16231.	214	65
1506	gi1335205	Homo sapiens	ORF11	209	69
1507	ABB44566	Homo sapiens	Human wound healing related polypeptide SEQ ID NO 23.	1058	100
1507	gi11414896	Homo sapiens	nucleoporin	1058	100
1507	gi1184173	Homo sapiens	nucleoporin 98	1058	100
1508	AAM79518	Homo sapiens	Human protein SEQ ID NO 3164.	1062	96
1508	AAM78534	Homo sapiens	Human protein SEQ ID NO 1196.	1062	96
1508	ABB11951	Homo sapiens	Human K/Cl cotransporter homologue, SEQ ID NO:2321.	1062	96
1509	AAB21033	Homo sapiens	Human nucleic acid-binding protein, NuABP-37.	293	81
1509	gi6691968	Homo sapiens	dJ148M19.1 (zinc finger protein)	293	81
1509	gi4096339	Homo sapiens	zinc finger protein	293	81
1511	gi8809808	Mus musculus	KRAB zinc finger protein	329	39
1511	AAM40475	Homo sapiens	Human polypeptide SEQ ID NO 5406.	322	79
1511	AAM38689	Homo sapiens	Human polypeptide SEQ ID NO 1834.	322	79
1512	gi15029737	Mus musculus	complement component 2 (within H-2S)	89	26
1512	gi3986766	Mus musculus	C2	89	26
1512	gi192435	Mus musculus	complement component C2	86	26
1513	AAB60489	Homo sapiens	Human cell cycle and proliferation protein CCYPR-37, SEQ ID NO:37.	1039	100
1513	AAB38417	Homo sapiens	Fragment of human secreted protein	1039	100

Table 2B
278

SEQ ID	Hit ID	Species	Description	S score	% Identity
			encoded by gene 5 clone HCGMF16.		
1513	gi4337460	Homo sapiens	neuroblastoma-amplified protein	1039	100
1514	gi1621611	Homo sapiens	TRAF family member-associated NF-kB activator TANK	2026	87
1514	AAY88237	Homo sapiens	Human I-TRAF protein.	1996	86
1514	AAW27163	Homo sapiens	Human TRAF inhibitor protein I-TRAF.	1996	86
1515	ABP47963	Homo sapiens	Human polypeptide SEQ ID NO 393.	239	100
1515	AAG67216	Homo sapiens	Amino acid sequence of human Parkin-Associated Protein 1 (PAP1).	239	100
1515	gi18490728	Mus musculus	synaptotagmin-like 3	142	60
1516	AAB93432	Homo sapiens	Human protein sequence SEQ ID NO:12661.	1322	86
1516	AAW88438	Homo sapiens	Disease associated protein kinase DAPK-7.	1322	86
1516	gi5931569	Homo sapiens	H91620p	1322	86
1517	gi5931821	Homo sapiens	dJ228H13.3 (zinc finger protein)	2360	100
1517	ABP51457	Homo sapiens	Human MDDT SEQ ID NO 479.	1497	100
1517	ABP51362	Homo sapiens	Human MDDT SEQ ID NO 384.	1497	100
1518	AAU80035	Homo sapiens	Beta 2 microglobulin (beta2M)/HFE monochain.	602	100
1518	ABP43154	Homo sapiens	Human ovarian antigen HVVCG93, SEQ ID NO:4286.	602	100
1518	AAY44412	Homo sapiens	Wild type human beta-2 microglobulin.	602	100
1520	AAO07974	Homo sapiens	Human polypeptide SEQ ID NO 21866.	158	68
1520	AAO07413	Homo sapiens	Human polypeptide SEQ ID NO 21305.	149	65
1520	AAO05994	Homo sapiens	Human polypeptide SEQ ID NO 19886.	121	56
1521	gi11386113	Homo sapiens	FKSG25	2457	94
1521	gi13548673	Homo sapiens	SCOT-t	2451	93
1521	gi20988313	Homo sapiens	3-oxoacid CoA transferase 2	2448	94
1522	AAM42400	Homo sapiens	Human polypeptide SEQ ID NO 133.	215	56
1522	AAM92851	Homo sapiens	Human digestive system antigen SEQ ID NO: 2200.	215	56
1522	gi17862572	Drosophila melanogaster	LD38503p	179	31
1523	gi3419880	Homo sapiens	MDC/ADAM11	3883	91
1523	AAR75352	Homo sapiens	Human fetal brain MDC protein.	3878	91
1523	gi5736634	Mus musculus	ADAM11	3658	87
1524	gi1109782	Homo sapiens	protein-tyrosine phosphatase	2517	98
1524	gi1781037	Mus musculus	neuronal tyrosine threonine phosphatase 1	2083	79
1524	AAM25744	Homo sapiens	Human protein sequence SEQ ID NO:1259.	987	45
1525	AAG75396	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6160.	442	100
1525	AAB53529	Homo sapiens	Human colon cancer antigen protein sequence SEQ ID NO:1069.	442	100
1525	AAR84194	Homo sapiens	Human A2b adenosine receptor.	442	100
1526	ABP44587	Homo sapiens	Human wound healing related polypeptide SEQ ID NO 44.	336	75
1526	gi184448	Homo sapiens	transcription factor	336	75

Table 2B

279

SEQ ID	Hit ID	Species	Description	S score	% Identity
1526	gi183930	Homo sapiens	helix-loop-helix protein	336	75
1527	AAB43940	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1385.	1241	78
1527	gi2198557	Homo sapiens	spermidine aminopropyltransferase	1190	78
1527	gi14602778	Homo sapiens	spermine synthase	1190	78
1528	ABP41860	Homo sapiens	Human ovarian antigen HTPHO72, SEQ ID NO:2992.	1189	62
1528	AAW21949	Homo sapiens	E6-binding protein E6-BPSD7.	1189	62
1528	gi469885	Homo sapiens	EF-hand protein	1189	62
1529	AAU83711	Homo sapiens	Human PRO protein, Seq ID No 240.	606	100
1529	AAB84327	Homo sapiens	Amino acid sequence of a human lyase and associated protein HLYAP-2.	606	100
1529	AAU12301	Homo sapiens	Human PRO6079 polypeptide sequence.	606	100
1530	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:121.	3094	92
1530	AAB38012	Homo sapiens	Human secreted protein encoded by gene 3 clone HNHCT15.	3094	92
1530	ABJ03747	Homo sapiens	Human ovary specific protein SEQ ID NO: 189.	3085	91
1531	gi13477353	Homo sapiens	Similar to rabphilin 3A-like (without C2 domains)	428	51
1531	ABB06134	Homo sapiens	Human NS protein sequence SEQ ID NO:226.	427	51
1531	gi5596433	Homo sapiens	candidate tumor suppressor protein NOC2	330	87
1532	AAU81224	Homo sapiens	Human lung cancer protein, Seq ID No 57.	2576	86
1532	gi1531645	Rattus norvegicus	C2-HC type zinc finger protein r-MyT3	1913	66
1532	gi2914751	Rattus norvegicus	neural zinc finger factor 3; NZF-3	1908	66
1533	AAE23388	Homo sapiens	Human intracellular signalling (INTSIG-15) protein.	643	39
1533	ABB78745	Homo sapiens	Human Tigger 1 transposase protein sequence.	438	71
1533	AAO01214	Homo sapiens	Human polypeptide SEQ ID NO 15106.	366	65
1534	AAU27733	Homo sapiens	Human full-length polypeptide sequence #58.	3947	90
1534	AAM78731	Homo sapiens	Human protein SEQ ID NO 1393.	3943	90
1534	AAB95860	Homo sapiens	Human protein sequence SEQ ID NO:18924.	3934	89
1535	gi15928572	Mus musculus	Similar to leucine rich repeat (in FLII) interacting protein 2	103	66
1535	gi17389307	Homo sapiens	Similar to leucine rich repeat (in FLII) interacting protein 2	97	63
1535	gi5257201	Homo sapiens	LRR FLI-I interacting protein 2	97	63
1536	AAG02639	Homo sapiens	Human secreted protein, SEQ ID NO: 6720.	160	71
1536	AAG02753	Homo sapiens	Human secreted protein, SEQ ID NO: 6834.	141	60
1536	gi7959778	Homo sapiens	PRO1546	140	60
1537	ABG47195	Homo sapiens	Human peptide encoded by genome-	507	100

Table 2B

280

SEQ ID	Hit ID	Species	Description	S score	% Identity
			derived single exon probe SEQ ID 36860.		
1537	AAM38436	Homo sapiens	Peptide #12473 encoded by probe for measuring placental gene expression.	507	100
1537	AAM22055	Homo sapiens	Peptide #8489 encoded by probe for measuring cervical gene expression.	507	100
1538	gi3133291	Homo sapiens	mitogen activated protein kinase activated protein kinase	853	85
1538	gi17512453	Mus musculus	MAP kinase-activated protein kinase 5	850	84
1538	gi2911813	Mus musculus	mitogen-activated protein kinase-activated protein kinase	850	84
1539	ABG38678	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 28343.	339	100
1539	AAM04612	Homo sapiens	Peptide #3294 encoded by probe for measuring breast gene expression.	339	100
1539	AAM29402	Homo sapiens	Peptide #3439 encoded by probe for measuring placental gene expression.	339	100
1540	gi13162677	Homo sapiens	GLUT4 enhancer factor	1499	65
1540	gi14627122	Homo sapiens	dJ583P15.5.1 (Glut4 enhancer factor (isoform 3))	1466	65
1540	AAB58934	Homo sapiens	Breast and ovarian cancer associated antigen protein sequence SEQ ID 642.	1395	99
1541	ABB90747	Homo sapiens	Human Tumour Endothelial Marker polypeptide SEQ ID NO 226.	1606	98
1541	ABB50291	Homo sapiens	Collagen type III alpha-1 ovarian tumour marker protein, SEQ ID NO:72.	1606	98
1541	ABG60248	Homo sapiens	Human ovarian antigen #10.	1606	98
1542	AAE01436	Homo sapiens	Human gene 1 encoded secreted protein HWLEJ10, SEQ ID NO:91.	1622	99
1542	AAE01515	Homo sapiens	Human gene 1 encoded secreted protein fragment, SEQ ID NO:172.	1618	98
1542	AAE01464	Homo sapiens	Human gene 1 encoded secreted protein HWLEJ10, SEQ ID NO:119.	1618	98
1543	gi186043	Homo sapiens	immunoglobulin light chain variable region	546	89
1543	gi219886	Homo sapiens	Ig kappa light chain	543	89
1543	AAY96298	Homo sapiens	Human IGFAM-10 immunoglobulin.	540	89
1544	AAE19183	Homo sapiens	Human protease, PRTS-20 protein.	3530	100
1544	AAU74761	Homo sapiens	Human protease PRTS-21 protein sequence.	2219	63
1544	AAO20514	Homo sapiens	Protein of APP related human homologue hCP201588.	2037	98
1545	gi6693836	Rattus norvegicus	SNIP-b	4413	78
1545	gi6693834	Rattus norvegicus	SNIP-a	4410	81
1545	gi3098418	Mus musculus	P140	4130	79
1546	gi179433	Homo sapiens	biglycan	2043	95
1546	AAB85043	Homo sapiens	Human biglycan protein sequence.	1894	89
1546	gi6960459	Homo sapiens	biglycan	1894	89
1547	gi20987689	Homo sapiens	Similar to allantoicase	1332	64

Table 2B

281

SEQ ID	Hit ID	Species	Description	S score	% Identity
1547	gi9255889	Mus musculus	allantoicase	1095	53
1547	gi14718648	Homo sapiens	allantoicase	1071	66
1548	AAM79289	Homo sapiens	Human protein SEQ ID NO 1951.	203	78
1548	AAG03927	Homo sapiens	Human secreted protein, SEQ ID NO: 8008.	203	78
1548	AAB57110	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1688.	203	78
1549	gi1838956	Bos taurus	capping protein, beta3 isoform	156	100
1549	gi2239063	Bos taurus	actin-binding protein CP3	156	100
1549	gi595257	Homo sapiens	F-actin capping protein beta subunit	156	100
1550	gi3370998	Homo sapiens	BAI1-associated protein 1	526	91
1550	gi15278193	Homo sapiens	MAGI-1C beta	526	91
1550	gi15278186	Homo sapiens	MAGI-1A	526	91
1551	ABG61604	Homo sapiens	Human DPRP-2 splice variant #3.	2850	95
1551	ABG61602	Homo sapiens	Human DPRP-2 splice variant #1.	2850	95
1551	ABG61592	Homo sapiens	Human DPPIV related serine protease DPRP-2.	2850	95
1552	AAG73867	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:4631.	322	36
1552	AAB58391	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 729.	322	36
1552	gi296667	Homo sapiens	ornithine decarboxylase (ODC)	322	36
1553	AAW96153	Homo sapiens	Human FADD-interacting protein (FIP).	168	100
1553	gi16118555	Homo sapiens	ELMO1	168	100
1553	gi21594742	Mus musculus	Similar to engulfment and cell motility 1, ced-12 homolog (C. elegans)	168	100
1554	ABB89950	Homo sapiens	Human polypeptide SEQ ID NO 2326.	244	81
1554	AAU86135	Homo sapiens	Human PRO274 polypeptide.	244	81
1554	AAB93352	Homo sapiens	Human protein sequence SEQ ID NO:12476.	244	81
1556	AAM38652	Homo sapiens	Human polypeptide SEQ ID NO 1797.	1838	85
1556	gi4530437	Homo sapiens	thyroid hormone receptor-associated protein complex component TRAP240	1645	78
1556	AAM40438	Homo sapiens	Human polypeptide SEQ ID NO 5369.	1611	77
1557	AAB64943	Homo sapiens	Human secreted protein sequence encoded by gene 7 SEQ ID NO:121.	2327	89
1557	AAB38012	Homo sapiens	Human secreted protein encoded by gene 3 clone HNHCT15.	2322	89
1558	gi11066463	Rattus norvegicus	RhoGEF glutamate transport modulator GTRAP48	3794	72
1558	gi19387126	Mus musculus	guanine nucleotide exchange factor	1051	37
1558	AAB90743	Homo sapiens	Human CW420_2 protein sequence SEQ ID 186.	1049	50
1559	gi18033747	Homo sapiens	myosin IIIB	1032	66
1559	AAE24138	Homo sapiens	Human kinase (PKIN)-9 protein.	964	65
1559	AAU03552	Homo sapiens	Human protein kinase #52.	964	65
1560	AAM79228	Homo sapiens	Human protein SEQ ID NO 1890.	3488	64
1560	AAM39300	Homo sapiens	Human polypeptide SEQ ID NO 2445.	3467	64

Table 2B

282

SEQ ID	Hit ID	Species	Description	S score	% Identity
1560	AAM41086	Homo sapiens	Human polypeptide SEQ ID NO 6017.	3458	63
1561	AAB59019	Homo sapiens	Breast and ovarian cancer associated antigen protein sequence SEQ ID 727.	158	47
1561	ABG35360	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 25025.	131	60
1561	AAM01340	Homo sapiens	Peptide #22 encoded by probe for measuring human breast gene expression.	131	60
1562	gi1504002	Homo sapiens	similar to a human major CRK-binding protein DOCK180.	2549	82
1562	gi13195147	Mus musculus	HCH	2457	79
1562	AAW03515	Homo sapiens	Human DOCK180 protein.	1636	53
1563	AAB52017	Homo sapiens	Human secreted protein sequence encoded by gene 6 SEQ ID NO:66.	266	100
1563	AAM91576	Homo sapiens	Human immune/haematopoietic antigen SEQ ID NO:19169.	77	37
1564	AAU10690	Homo sapiens	Human agouti polypeptide.	362	97
1564	gi540073	Homo sapiens	agouti precursor	362	97
1564	gi8953446	Homo sapiens	dJ785G19.3 (agouti (mouse)-signaling protein)	362	97
1565	AAM79853	Homo sapiens	Human protein SEQ ID NO 3499.	2302	82
1565	AAM78869	Homo sapiens	Human protein SEQ ID NO 1531.	2302	82
1565	gi619877	Homo sapiens	hydroxymethylglutaryl-CoA synthase	2302	82
1566	AAM41373	Homo sapiens	Human polypeptide SEQ ID NO 6304.	356	100
1566	AAM39587	Homo sapiens	Human polypeptide SEQ ID NO 2732.	356	100
1566	AAU12276	Homo sapiens	Human PRO6001 polypeptide sequence.	154	41
1567	AAU27723	Homo sapiens	Human full-length polypeptide sequence #48.	232	80
1567	AAO10211	Homo sapiens	Human polypeptide SEQ ID NO 24103.	219	84
1567	AAO01262	Homo sapiens	Human polypeptide SEQ ID NO 15154.	218	74
1568	gi11595428	Homo sapiens	dJ702J19.1 (glycine cleavage system protein H (aminomethyl carrier))	862	91
1568	gi219671	Homo sapiens	hydrogen carrier protein precursor	856	91
1568	gi12653985	Homo sapiens	glycine cleavage system protein H (aminomethyl carrier)	856	91
1569	AAO14211	Homo sapiens	Human transporter and ion channel TRICH-28.	228	59
1569	AAG77968	Homo sapiens	Human ion channel protein IC23949.	217	57
1569	AAM34851	Homo sapiens	Peptide #8888 encoded by probe for measuring placental gene expression.	155	100
1570	gi532505	Homo sapiens	bile acid CoA: Amino acid N-acyltransferase	2049	99
1570	gi16306985	Homo sapiens	bile acid Coenzyme A: amino acid N-acyltransferase (glycine N-choloyltransferase)	2049	99
1570	gi15215152	Mus musculus	Similar to bile acid-Coenzyme A	1410	68

Table 2B

283

SEQ ID	Hit ID	Species	Description	S score	% Identity
			dehydrogenase: amino acid n-acyltransferase		
1571	gi15487674	Homo sapiens	OSBP-related protein 1; ORP1	204	100
1571	gi17529999	Homo sapiens	oxysterol-binding protein-like protein OSBPL1B	204	100
1571	AAG89290	Homo sapiens	Human secreted protein, SEQ ID NO: 410.	198	97
1572	AAO17114	Homo sapiens	Human Gli3 protein SEQ ID NO: 21.	1105	62
1572	gi6102812	Homo sapiens	GLI3 protein	1105	62
1572	gi183248	Homo sapiens	DNA-binding protein	1105	62
1573	gi18447471	Drosophila melanogaster	RE41571p	177	47
1573	gi9965400	murine herpesvirus 72	membrane virion glycoprotein 150	128	30
1573	gi1019435	Trypanosoma cruzi	mucin-like protein	127	36
1574	ABG38560	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 28225.	239	100
1574	AAM04517	Homo sapiens	Peptide #3199 encoded by probe for measuring breast gene expression.	239	100
1574	AAM29283	Homo sapiens	Peptide #3320 encoded by probe for measuring placental gene expression.	239	100
1575	AAU83597	Homo sapiens	Human PRO protein, Seq ID No 12.	1294	100
1575	AAB74709	Homo sapiens	Human membrane associated protein MEMAP-15.	1294	100
1575	AAU96185	Homo sapiens	Human secreted protein, SEQ ID No 87.	1121	80
1576	AAM79494	Homo sapiens	Human protein SEQ ID NO 3140.	2432	86
1576	gi1773381	Homo sapiens	APXL	2432	86
1576	AAM78510	Homo sapiens	Human protein SEQ ID NO 1172.	2428	86
1577	AAU07829	Homo sapiens	Human ARTS-1 polypeptide.	3395	76
1577	gi21315078	Homo sapiens	type 1 tumor necrosis factor receptor shedding aminopeptidase regulator	3395	76
1577	gi6381989	Homo sapiens	adipocyte-derived leucine aminopeptidase	3388	76
1578	ABG35337	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 25002.	150	75
1578	AAM01319	Homo sapiens	Peptide #1 encoded by probe for measuring human breast gene expression.	150	75
1578	AAM25964	Homo sapiens	Peptide #1 encoded by probe for measuring placental gene expression.	150	75
1579	gi7657864	Homo sapiens	match to nuclear protein, NP220; note: sequence difference at residue 58	4034	98
1579	AAY07032	Homo sapiens	Breast cancer associated antigen precursor sequence.	4023	98
1579	gi1374698	Homo sapiens	nuclear protein, NP220	4023	98
1580	ABB09439	Homo sapiens	Serpin domain protein Zserp15 associated amino acid sequence.	1172	98
1580	AAW51933	Homo sapiens	Human protease nexin I type alpha.	1172	98
1580	AAW51934	Homo sapiens	Human protease nexin I type beta.	1172	98
1581	gi499184	Felis catus	neuronal protein	305	93

Table 2B

284

SEQ ID	Hit ID	Species	Description	S score	% Identity
1581	AAB95041	Homo sapiens	Human protein sequence SEQ ID NO:16804.	284	73
1581	gi13960126	Homo sapiens	Similar to leucine-rich neuronal protein	230	75
1582	AAB80253	Homo sapiens	Human PRO293 protein.	3181	99
1582	AAY13385	Homo sapiens	Amino acid sequence of protein PRO293.	3181	99
1582	AAU83686	Homo sapiens	Human PRO protein, Seq ID No 190.	1669	55
1583	AAB73858	Homo sapiens	Human NPM/ALK fusion protein.	268	75
1583	AAB28184	Homo sapiens	Human Nucleophosmin.	268	75
1584	AAB93492	Homo sapiens	Human protein sequence SEQ ID NO:12796.	697	100
1584	gi7302187	Drosophila melanogaster	CG7849-PA	274	40
1584	gi21626800	Drosophila melanogaster	CG7849-PB	274	40
1585	gi8572061	Bombyx mori	fibroin heavy chain Fib-H	156	34
1585	gi765323	Bombyx mori	silk fibroin heavy chain	155	39
1585	gi155999	Bombyx mori	silk fibroin	147	39
1586	gi12002682	Homo sapiens	FERM-containing protein	2019	83
1586	ABP37983	Homo sapiens	Human GS93382 protein.	531	99
1586	AAB12318	Homo sapiens	Human secreted protein encoded by gene 18 clone HE2FL70.	189	100
1587	ABP41887	Homo sapiens	Human ovarian antigen HKZBB48, SEQ ID NO:3019.	1005	90
1587	AAB95585	Homo sapiens	Human protein sequence SEQ ID NO:18250.	1005	90
1587	AAY86208	Homo sapiens	Nuclear transport protein clone hfb030 protein sequence.	1005	90
1590	AAG02851	Homo sapiens	Human secreted protein, SEQ ID NO: 6932.	226	88
1590	AAB38280	Homo sapiens	Human secreted protein sequence encoded by gene 20 SEQ ID NO:136.	226	88
1591	AAB95593	Homo sapiens	Human protein sequence SEQ ID NO:18273.	2718	82
1591	AAU27637	Homo sapiens	Human protein AFP39158.	609	75
1591	ABG45908	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 35573.	311	100
1592	ABB05746	Homo sapiens	Human GASC1 protein SEQ ID NO:1.	780	33
1592	gi10567164	Homo sapiens	gene amplified in squamous cell carcinoma-1	780	33
1592	AAM39339	Homo sapiens	Human polypeptide SEQ ID NO 2484.	777	33
1593	AAY69069	Homo sapiens	Amino acid sequence of a human reduced tropoelastin derivative.	2887	80
1593	gi182020	Homo sapiens	elastin	2887	80
1593	AAO17360	Homo sapiens	Human elastin.	2870	79
1595	gi291854	Homo sapiens	aminopeptidase A	1289	91
1595	gi1518865	Sus scrofa	aminopeptidase A	1127	80
1595	gi7673021	Rattus norvegicus	aminopeptidase A	1103	77
1596	AAU71952	Homo sapiens	Human bone marrow tissue	356	58

Table 2B
285

SEQ ID	Hit ID	Species	Description	S score	% Identity
			polypeptide #30.		
1597	gi556769	Homo sapiens	inositol 1,4,5-triphophate 5-phosphatase	342	92
1597	ABB77441	Homo sapiens	Human tumour marker protein L19-1.	339	91
1597	gi21262190	Homo sapiens	CTCL tumor antigen Li9-1	339	91
1598	ABB08405	Homo sapiens	Alpha1,6-fucosyl transferase amino acid sequence.	367	100
1598	AAW22125	Homo sapiens	Human alpha 1-6 fucosyltransferase.	367	100
1598	gi7638407	Bos taurus	6-alpha-L-fucosyltransferase	367	100
1599	AAM90773	Homo sapiens	Human immune/haematopoietic antigen SEQ ID NO:18366.	905	97
1599	AAU74354	Homo sapiens	Human cytoskeleton-associated protein (CYSKP) #25.	740	43
1599	AAB93267	Homo sapiens	Human protein sequence SEQ ID NO:12300.	149	46
1600	AAB48140	Homo sapiens	Human TANGO 209 variant 2 polypeptide.	372	80
1600	AAB48139	Homo sapiens	Human TANGO 209 variant 1 polypeptide.	372	80
1600	AAB48107	Homo sapiens	Human TANGO 209 polypeptide.	372	80
1601	gi6941623	Homo sapiens	dJ469D22.1 (Rhesus blood group, CcEe antigens)	268	76
1601	AAB03339	Homo sapiens	Human RhCe protein.	252	100
1601	AAB03338	Homo sapiens	Human RhCE protein.	252	100
1602	AAB94196	Homo sapiens	Human protein sequence SEQ ID NO:14530.	784	79
1602	AAB93449	Homo sapiens	Human protein sequence SEQ ID NO:12696.	784	79
1602	AAB97178	Homo sapiens	Human EF-chiral calcium-binding protein 96.	784	79
1603	gi13096814	Mus musculus	RIKEN cDNA 4932442K08 gene	165	72
1603	gi11493928	Homo sapiens	homeodomain-interacting protein kinase 2	74	20
1604	gi1321596	Homo sapiens	immunoglobulin lambda-chain subgroup II	378	63
1604	AAG76014	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6778.	362	97
1604	gi21619848	Homo sapiens	Similar to immunoglobulin lambda joining 3	344	92
1605	AAB95234	Homo sapiens	Human protein sequence SEQ ID NO:17375.	2336	92
1605	AAB27239	Homo sapiens	Human EXMAD-17 SEQ ID NO: 17.	2334	99
1605	gi19263740	Mus musculus	axotrophin	1935	79
1606	AAB92702	Homo sapiens	Human protein sequence SEQ ID NO:11102.	3250	92
1606	gi20451682	Homo sapiens	JEMMA protein	3250	92
1606	AAB93188	Homo sapiens	Human protein sequence SEQ ID NO:12140.	3088	91
1607	AAB31693	Homo sapiens	Amino acid sequence of viral encoded semaphorin protein receptor.	1014	79
1607	AAB70131	Homo sapiens	Human VESPR.	1014	79
1607	AAY13462	Homo sapiens	Viral-encoded semaphorin protein receptor (VESPR) polypeptide.	1014	79
1608	AAW29683	Homo sapiens	Human Na-K-2Cl cotransporter NKCC2.	1295	99

Table 2B

286

SEQ ID	Hit ID	Species	Description	S score	% Identity
1608	gi1373425	Homo sapiens	bumetanide-sensitive Na-K-2Cl cotransporter	1295	99
1608	gi516001	Oryctolagus cuniculus	bumetanide-sensitive Na-K-Cl cotransport protein splice isoform F	1244	95
1610	AAB88388	Homo sapiens	Human membrane or secretory protein clone PSEC0131.	923	100
1610	gi20810493	Homo sapiens	Similar to RIKEN cDNA 2810417M05 gene	920	99
1610	AAE21272	Homo sapiens	Human gene 16 encoded secreted protein fragment, SEQ ID NO:138.	432	100
1611	AAY53753	Homo sapiens	Amino acid sequence of the MMSC2 protein.	269	98
1611	AAY04732	Homo sapiens	Protein containing PDZ domain from clone 38-2-1a.	269	98
1611	AAY04734	Homo sapiens	Protein containing PDZ domain from clone 38-2-1c.	269	98
1612	AAR85912	Homo sapiens	Oncostatin M receptor-beta subunit.	1138	92
1612	gi1794211	Homo sapiens	oncostatin-M specific receptor beta subunit	1138	92
1612	gi15012082	Homo sapiens	Similar to oncostatin M receptor	1138	92
1613	ABP42361	Homo sapiens	Human ovarian antigen HNOKG34, SEQ ID NO:3493.	406	82
1613	AAB48966	Homo sapiens	Human heterogeneous nuclear ribonucleoprotein A1 (hnRNP A1).	406	82
1613	AAW55828	Homo sapiens	Human heterogeneous nuclear ribonucleoprotein core protein A1.	406	82
1614	ABB07649	Homo sapiens	Human LOR-1 protein.	898	99
1614	AAB00077	Homo sapiens	Human lysyl oxidase related protein (Lor).	898	99
1614	gi1890108	Homo sapiens	lysyl oxidase-related protein	898	99
1615	gi12803157	Homo sapiens	COX15 (yeast) homolog, cytochrome c oxidase assembly protein	163	48
1615	gi3603230	Homo sapiens	cytochrome oxidase assembly factor	163	48
1615	gi7619702	Homo sapiens	bA483F11.2.1 (COX15 (yeast) homolog, cytochrome c oxidase assembly protein (isoform 1))	163	48
1616	gi7672979	Homo sapiens	glucosidase II beta subunit	2553	84
1616	ABB50266	Homo sapiens	Protein kinase C substrate 80K-H ovarian tumour marker protein, #20.	2536	84
1616	gi1293640	Homo sapiens	protein kinase C substrate 80K-H	2536	84
1617	AAY07076	Homo sapiens	Renal cancer associated antigen precursor sequence.	355	100
1617	gi1022888	Oryctolagus cuniculus	protein phosphatase 2A0 B' subunit beta4 isoform	355	100
1617	gi1022886	Oryctolagus cuniculus	protein phosphatase 2A0 B' regulatory subunit beta3 isoform	355	100
1618	gi14010930	Haemophilus influenzae Rd; similar to AAC22226.1 (PID:g1573555) [Homo sapiens]	similar to transcription accessory protein (tex)	1868	100
1618	AAB92758	Homo sapiens	Human protein sequence SEQ ID NO:11220.	1863	99
1618	ABB89105	Homo sapiens	Human polypeptide SEQ ID NO	1231	95

Table 2B

287

SEQ ID	Hit ID	Species	Description	S score	% Identity
			1481.		
1619	AAW64262	Homo sapiens	Human neutrophil elastase.	628	100
1619	AAP80335	Homo sapiens	Sequence of serine protease (SP) of human myeloid cellorigin and leader peptide.	628	100
1619	gi296665	Homo sapiens	serine protease	628	100
1620	gi9965989	Homo sapiens	calcineurin A catalytic subunit gamma isoform	1648	97
1620	gi258001	Homo sapiens	calcineurin A catalytic subunit; calmodulin-dependent protein phosphatase catalytic subunit; CaM-PrP catalytic subunit	1637	96
1620	gi200466	Mus musculus	phosphoprotein phosphatase	1471	85
1621	gi1778538	Escherichia coli	anaerobic carrier for c4, dicarboxylates	739	100
1621	gi1786839	Escherichia coli K12	transport of dicarboxylates	739	100
1621	gi12513520	Escherichia coli O157:H7 EDL933	transport of dicarboxylates	739	100
1622	AAE15635	Homo sapiens	Human G-protein coupled receptor-5 (GCREC-5) protein.	271	94
1622	AAB66272	Homo sapiens	Human TANGO 378 SEQ ID NO: 29.	271	94
1622	AAB82487	Homo sapiens	Human secretin-like receptor Zgpr1 splice variant.	271	94
1623	gi1787320	Escherichia coli K12	homolog of Salmonella P-ring of flagella basal body	749	87
1623	gi4062658	Escherichia coli	Flagellar basal body P-ring protein precursor	749	87
1623	gi12514621	Escherichia coli O157:H7 EDL933	homolog of Salmonella P-ring of flagella basal body	748	86
1624	gi13360031	Escherichia coli O157:H7	allantoinase	492	69
1624	gi2735238	Escherichia coli	GlxB3	491	70
1624	gi1773192	Escherichia coli	similar to S. cerevisiae dal1	491	70
1625	gi606368	Escherichia coli	aspartate semialdehyde dehydrogenase	1478	93
1625	gi3859587	Shigella sonnei	aspartate semialdehyde dehydrogenase	1478	93
1625	gi1789841	Escherichia coli K12	aspartate-semialdehyde dehydrogenase	1478	93
1626	gi1788006	Escherichia coli K12	phenylalanine tRNA synthetase, beta-subunit	735	94
1626	gi12515724	Escherichia coli O157:H7 EDL933	phenylalanine tRNA synthetase, beta-subunit	735	94
1626	gi1742806	Escherichia coli	Phenylalanine--tRNA ligase (EC 6.1.1.20) b chain	735	94
1627	AAB49502	Homo sapiens	Clone HYASC03.	310	98
1627	gi22137373	Mus musculus	similar to RIKEN cDNA 2810051A14 gene	240	95
1627	gi20071228	Mus musculus	RIKEN cDNA 2810051A14 gene	151	51
1628	gi17431382	Ralstonia	PROBABLE TRANSCRIPTION	357	37

Table 2B

288

SEQ ID	Hit ID	Species	Description	S score	% Identity
		solanacearum	REGULATOR PROTEIN		
1628	gi21114950	Xanthomonas campestris pv. campestris str. ATCC 33913	transcriptional regulator	331	38
1629	gi311422	Escherichia coli	ORF-2	282	100
1630	gi732874	Neisseria meningitidis	IgA1 protease	101	33
1630	gi600255	Gallus gallus	caldesmon	99	23
1631	gi1788756	Escherichia coli K12	PEP-protein phosphotransferase system enzyme I	785	96
1631	gi12516792	Escherichia coli O157:H7 EDL933	PEP-protein phosphotransferase system enzyme I	785	96
1631	gi1799835	Escherichia coli	PHOSPHOENOLPYRUVATE-PROTEIN PHOSPHOTRANSFERASE (EC 2.7.3.9) (PHOSPHOTRANSFERASE SYSTEM, ENZYME I).	785	96
1632	gi887820	Escherichia coli	UUG start; possible frameshift at end?	810	72
1632	gi466651	Escherichia coli	No definition line found	343	82
1632	gi21957797	Yersinia pestis KIM	acridine efflux pump	250	56
1633	AAB92950	Homo sapiens	Human protein sequence SEQ ID NO:11629.	290	100
1633	gi21627153	Drosophila melanogaster	CG8155-PA	82	39
1633	gi3850257	Coltivirus JKT-7043	Vp9	78	40
1634	gi12580933	Homo sapiens	dJ505P2.1.1 (ribonuclease 6 precursor)	442	62
1634	AAY21852	Homo sapiens	Human signal peptide-contianing protein (SIGP) (clone ID 2652271).	437	61
1634	AAW75103	Homo sapiens	Human secreted protein encoded by gene 47 clone HMCBP63.	437	61
1635	gi18146756	Homo sapiens	limkain beta 2	1620	100
1635	AAY86509	Homo sapiens	Human gene 70-encoded protein fragment, SEQ ID NO:424.	696	100
1635	AAY86510	Homo sapiens	Human gene 70-encoded protein fragment, SEQ ID NO:425.	436	100
1636	gi8096340	Homo sapiens	RERE	513	71
1636	gi4689163	Caenorhabditis elegans	EGL-27	83	23
1636	gi21913127	Caenorhabditis elegans	C. elegans EGL-27 protein (corresponding sequence C04A2.3b)	83	23
1637	AAU69417	Homo sapiens	Lung small cell carcinoma antigen #11.	514	94
1637	AAB85481	Homo sapiens	Human 23553 sulfatase polypeptide.	514	94
1637	AAM25714	Homo sapiens	Human protein sequence SEQ ID NO:1229.	514	94
1638	AAM43540	Homo sapiens	Human polypeptide SEQ ID NO 218.	741	100
1638	AAM38682	Homo sapiens	Human polypeptide SEQ ID NO 1827.	741	100

Table 2B

289

SEQ ID	Hit ID	Species	Description	S score	% Identity
1638	AAY42750	Homo sapiens	Human calcium binding protein 1 (CaBP-1).	741	100
1639	AAB94175	Homo sapiens	Human protein sequence SEQ ID NO:14484.	908	86
1639	AAM40361	Homo sapiens	Human polypeptide SEQ ID NO 3506.	908	86
1639	gi15215085	Mus musculus	Similar to COP9 (constitutive photomorphogenic), subunit 7b (Arabidopsis)	900	85
1640	gi1529	Oryctolagus cuniculus	calcium channel BI-2	95	30
1640	gi2653364	Bovine herpesvirus type 1.1	immediate-early transactivator protein (cell nucleus)	91	25
1640	gi291536	Bovine herpesvirus 1	BICP4	91	25
1641	AAB26105	Homo sapiens	Human DAN/Cerberus-related protein 6 (hDCR6) #1.	2012	100
1641	AAE17089	Homo sapiens	Human osteolevin protein.	758	100
1641	ABB07209	Homo sapiens	Human cloaked-2 polypeptide sequence.	758	100
1642	AAU29026	Homo sapiens	Human PRO polypeptide sequence #3.	279	94
1642	AAY99458	Homo sapiens	Human PRO193 amino acid sequence SEQ ID NO:410.	279	94
1642	AAY36125	Homo sapiens	Extended human secreted protein sequence, SEQ ID NO. 510.	279	94
1643	ABG60166	Homo sapiens	Human DITHP polypeptide #224.	426	76
1643	AAG76121	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6885.	426	76
1643	AAM38668	Homo sapiens	Human polypeptide SEQ ID NO 1813.	426	76
1644	AAU84339	Homo sapiens	Protein HPV16E1Bind differentially expressed in breast cancer tissue.	514	82
1644	gi2232019	Homo sapiens	HPV16 E1 protein binding protein	514	82
1644	gi12653271	Homo sapiens	thyroid hormone receptor interactor 13	514	82
1645	AAU74752	Homo sapiens	Human protease PRTS-12 protein sequence.	3063	99
1645	ABG34074	Homo sapiens	Human Pro peptide #45.	2954	98
1645	AAB50936	Homo sapiens	ADAM protein #2.	2814	100
1646	AAO20516	Homo sapiens	Protein of APP related human homologue hCP50592.	273	98
1646	gi1232077	Homo sapiens	huMCM2	273	98
1646	gi13544066	Homo sapiens	Similar to mini chromosome maintenance deficient 2 (S. cerevisiae)	273	98
1647	AAG75416	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:6180.	655	74
1647	AAB57016	Homo sapiens	Human prostate cancer antigen protein sequence SEQ ID NO:1594.	655	74
1647	gi14328059	Homo sapiens	argininosuccinate synthetase	655	74
1648	gi7960207	Oncorhynchus mykiss	vitelline envelope protein alpha	252	43
1648	gi15384295	Mycoplasma	variable surface lipoprotein Vsp422-	177	34

Table 2B
290

SEQ ID	Hit ID	Species	Description	S score	% Identity
		bovis	8		
1648	gi2281750	Salmo salar	eggshell protein	164	38
1649	AAM79049	Homo sapiens	Human protein SEQ ID NO 1711.	345	78
1650	gi7018384	Homo sapiens	dJ193N13.1 (mannosidase, alpha, class 1A, member 1)	1026	98
1650	gi15929672	Mus musculus	mannosidase 1, alpha	909	88
1650	gi474280	Mus musculus	mannosyl-oligosaccharide alpha-1,2-mannosidase	909	88
1651	AAU10551	Homo sapiens	Human A259 polypeptide.	835	71
1651	ABP47883	Homo sapiens	Human polypeptide SEQ ID NO 313.	835	71
1651	AAB50085	Homo sapiens	Human A259.	835	71
1652	gi4512295	Homo sapiens	immunoglobulin heavy chain variable region	619	100
1652	AAR66320	Homo sapiens	Human immunoglobulin variable heavy chain #26.	613	99
1652	gi296657	Homo sapiens	Ig heavy chain gene variable region V(12G-1)	613	99
1653	AAE24079	Homo sapiens	Human MDPK protein.	185	85
1653	AAE24150	Homo sapiens	Human kinase (PKIN)-21 protein.	181	97
1653	AAU03501	Homo sapiens	Human protein kinase #1.	181	97
1654	AAU75784	Homo sapiens	Human protein phosphatase 2 (PP2) protein sequence.	667	92
1654	AAE04841	Homo sapiens	Human SGP039 phosphatase polypeptide.	667	92
1654	gi8954030	117	Contains similarity to protein phosphatase 2C from Arabidopsis thaliana gb|AF085279. It contains a protein phosphatase 2C domain PF|00481	42	
1655	AAU96179	Homo sapiens	Human secreted protein, SEQ ID No 81.	86	27
1655	gi1794219	Homo sapiens	150 kDa oxygen-regulated protein ORP150	82	25
1655	AAB01381	Homo sapiens	Neuron-associated protein.	76	41
1656	ABB84869	Homo sapiens	Human PRO1079 protein sequence SEQ ID NO:106.	404	78
1656	ABB95475	Homo sapiens	Human angiogenesis related protein PRO1079 SEQ ID NO: 106.	404	78
1656	AAB75372	Homo sapiens	Human secreted protein #31.	404	78
1657	AAM41200	Homo sapiens	Human polypeptide SEQ ID NO 6131.	332	97
1657	AAM39414	Homo sapiens	Human polypeptide SEQ ID NO 2559.	332	97
1657	gi31867	Homo sapiens	N-acetylglucosamine-6-sulphatase	332	97
1658	AAW25154	Homo sapiens	Human disulphide epimerase like enzyme, EP52.	2281	100
1658	gi1136743	Homo sapiens	human P5	2281	100
1658	gi12654931	Homo sapiens	protein disulfide isomerase-related protein	2281	100
1659	AAM41859	Homo sapiens	Human polypeptide SEQ ID NO 6790.	357	71
1659	gi6694278	Homo sapiens	cell recognition molecule Caspr2	357	71
1659	gi13624214	Homo sapiens	contactin-associated protein 2	357	71
1660	AAO11734	Homo sapiens	Human polypeptide SEQ ID NO 25626.	141	100

Table 2B

291

SEQ ID	Hit ID	Species	Description	S score	% Identity
1661	AAG74841	Homo sapiens	Human colon cancer antigen protein SEQ ID NO:5605.	568	87
1661	gi4588087	Homo sapiens	PTH-responsive osteosarcoma B1 protein	568	87
1661	gi20987880	Mus musculus	Similar to PTH-responsive osteosarcoma B1 protein	536	86
1662	gi4754907	Homo sapiens	histone deacetylase 4	2891	77
1662	gi14495171	Gallus gallus	histone deacetylase-4	2525	68
1662	AAB49957	Homo sapiens	Human histone deacetylase HDAC-4.	2508	79
1663	ABB94075	Homo sapiens	Human secreted protein SEQ ID NO: 118.	183	100
1663	ABB94056	Homo sapiens	Human secreted protein SEQ ID NO: 99.	183	100
1663	ABB94030	Homo sapiens	Human secreted protein SEQ ID NO: 73.	183	100
1664	ABB37187	Homo sapiens	Peptide #4693 encoded by human foetal liver single exon probe.	196	100
1664	gi13310486	Homo sapiens	C2H2 zinc finger protein	91	31
1664	gi15159543	Agrobacterium tumefaciens str. C58 (Cereon)	AGR_L_2143p	88	25
1665	AAB32388	Homo sapiens	Human secreted protein sequence encoded by gene 18 SEQ ID NO:74.	359	100
1665	AAY91419	Homo sapiens	Human secreted protein sequence encoded by gene 6 SEQ ID NO:140.	82	36
1665	gi21708132	Homo sapiens	Similar to LOC149473	82	31
1666	gi219615	Homo sapiens	preproelafin	621	100
1666	gi299841	Homo sapiens	pre-elafin	621	100
1666	gi190338	Homo sapiens	elafin precursor	621	100
1667	gi18072031	Homo sapiens	zinc finger protein 328	397	78
1667	AAU27687	Homo sapiens	Human full-length polypeptide sequence #12.	270	66
1667	AAM79885	Homo sapiens	Human protein SEQ ID NO 3531.	259	58
1669	AAG03136	Homo sapiens	Human secreted protein, SEQ ID NO: 7217.	179	75
1669	AAU85309	Homo sapiens	G-coupled olfactory receptor #170.	176	68
1669	AAU24689	Homo sapiens	Human olfactory receptor AOLFR188.	176	68
1670	AAY21852	Homo sapiens	Human signal peptide-contianing protein (SIGP) (clone ID 2652271).	375	83
1670	AAY48563	Homo sapiens	Human breast tumour-associated protein 24.	375	83
1670	AAW75103	Homo sapiens	Human secreted protein encoded by gene 47 clone HMCBP63.	375	83
1671	gi6572310	Homo sapiens	cB13C9.1 (protein 239AB)	395	98
1671	AAU69508	Homo sapiens	Human purified secretory polypeptide #77.	348	60
1671	gi7374112	Homo sapiens	239AB	347	80
1672	AAG63163	Homo sapiens	Amino acid sequence of carcinoembryonic antigen-like polypeptide.	2187	99
1672	AAR54714	Homo sapiens	Carcinoembryonic antigen CEA-(c).	456	30
1672	AAB43688	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1133.	455	31
1673	AAU74354	Homo sapiens	Human cytoskeleton-associated	1163	34

Table 2B

292

SEQ ID	Hit ID	Species	Description	S score	% Identity
			protein (CYSKP) #25.		
1673	AAB93267	Homo sapiens	Human protein sequence SEQ ID NO:12300.	463	33
1675	AAM06070	Homo sapiens	Peptide #4752 encoded by probe for measuring breast gene expression.	259	100
1676	ABP43066	Homo sapiens	Human ovarian antigen HVCAE01, SEQ ID NO:4198.	292	58
1676	ABP42762	Homo sapiens	Human ovarian antigen HOVJU75, SEQ ID NO:3894.	292	58
1676	AAG01285	Homo sapiens	Human secreted protein, SEQ ID NO: 5366.	292	58
1677	gi458226	Homo sapiens	a gene isolated from a CpG island between STS and KAL	1249	97
1677	AAG00737	Homo sapiens	Human secreted protein, SEQ ID NO: 4818.	531	94
1677	gi9663151	Homo sapiens	transport-secretion protein 2.1 (TTS-2.1)	421	35
1678	gi1806102	Homo sapiens	T cell receptor beta chain	444	100
1678	AAB68370	Homo sapiens	Human beta-chain variable region of T cell receptors (Vbeta17).	440	98
1678	AAW76993	Homo sapiens	Human T cell receptor beta chain variable region protein V-beta 17.	440	98
1679	AAB92624	Homo sapiens	Human protein sequence SEQ ID NO:10919.	455	100
1679	ABG39897	Homo sapiens	Human peptide encoded by genome-derived single exon probe SEQ ID 29562.	155	69
1679	AAM05720	Homo sapiens	Peptide #4402 encoded by probe for measuring breast gene expression.	155	69
1680	gi10186503	Homo sapiens	sialic acid-specific acetylesterase II	907	68
1680	gi10242345	Homo sapiens	sialic acid-specific 9-O-acetylesterase I	907	68
1680	gi5917657	Mus musculus	cytosolic sialic acid 9-O-acetylesterase	732	55
1681	gi46540	Staphylococcus aureus	coagulase precursor	82	25
1681	gi20338653	Staphylococcus aureus	coagulase	82	25
1681	gi21328339	Caenorhabditis elegans	C. elegans RBP-1 protein (corresponding sequence F37A4.7d)	80	31
1682	AAO07844	Homo sapiens	Human polypeptide SEQ ID NO 21736.	100	70
1682	AAO07413	Homo sapiens	Human polypeptide SEQ ID NO 21305.	91	46
1682	gi17861952	Drosophila melanogaster	LD01947p	87	53
1683	AAW99574	Homo sapiens	Human early placental insulin-like (EPIL) polypeptide.	349	100
1683	AAY26926	Homo sapiens	Human insulin-like 4 protein.	349	100
1683	AAW69168	Homo sapiens	Zins1 protein.	349	100
1684	gi23365	Homo sapiens	17-HSD protein (AA 1 - 328)	1082	70
1684	gi181951	Homo sapiens	estradiol 17 beta-dehydrogenase	1082	70
1684	gi177127	Homo sapiens	17-beta-hydroxysteroid dehydrogenase	1082	70
1685	ABB84963	Homo sapiens	Human PRO4356 protein sequence	1336	99

Table 2B
293

SEQ ID	Hit ID	Species	Description	S score	% Identity
			SEQ ID NO:294.		
1685	ABB95569	Homo sapiens	Human angiogenesis related protein PRO4356 SEQ ID NO: 294.	1336	99
1685	AAB31206	Homo sapiens	Amino acid sequence of human polypeptide PRO4356.	1336	99
1686	ABB80870	Homo sapiens	Type II TGFbeta receptor (RII) sequence.	2130	88
1686	AAB82996	Homo sapiens	Human transforming growth factor-beta receptor RII.	2130	88
1686	AAY59453	Homo sapiens	Human Transforming growth factor-beta II protein sequence.	2130	88
1687	ABB79162	Homo sapiens	Human VPAC1 receptor protein SEQ ID NO:2.	386	76
1687	ABB79161	Homo sapiens	Human VPAC1 receptor protein SEQ ID NO:1.	386	76
1687	AAB71878	Homo sapiens	Human VIPR seven transmembrane domain.	386	76
1688	AAB84663	Homo sapiens	Amino acid sequence of human tyrosine kinase protein Yes.	520	90
1688	AAY24421	Homo sapiens	Human yes1 protein.	520	90
1688	gi181268	Homo sapiens	cellular yes-1 protein	520	90
1690	AAO14938	Homo sapiens	Human UFD2-associated protein 1.	1386	76
1690	AAM00761	Homo sapiens	Human bone marrow protein, SEQ ID NO: 124.	1386	76
1690	gi13516467	Homo sapiens	homzygously deleted in neuroblastoma-1/UFD2	1386	76
1691	AAB47977	Homo sapiens	BCY5.	334	98
1691	gi2463632	Homo sapiens	monocarboxylate transporter homologue MCT6	326	96
1691	gi9246437	Staphylococcus aureus	fmtA-like protein	81	24
1692	AAB95143	Homo sapiens	Human protein sequence SEQ ID NO:17163.	394	98
1692	AAB93175	Homo sapiens	Human protein sequence SEQ ID NO:12114.	394	98
1692	AAB58175	Homo sapiens	Lung cancer associated polypeptide sequence SEQ ID 513.	394	98
1693	AAG65906	Homo sapiens	Amino acid sequence of GSK gene Id 37967.	3025	92
1693	AAY67598	Homo sapiens	Human adipose tissue protein #1.	501	40
1693	gi3786312	Homo sapiens	extracellular matrix protein	501	40
1694	ABB83488	Homo sapiens	Human cytoskelcton-associated protein, CSAP-17.	216	93
1694	gi3002588	Mus musculus	Plenty of SH3s; POSH	216	93
1694	gi18676610	Homo sapiens	FLJ00204 protein	206	86
1695	gi12018147	Chlamydomonas reinhardtii	vegetative cell wall protein gp1	132	30
1695	gi17945382	Drosophila melanogaster	RE17165p	130	28
1695	gi1209103	Rattus norvegicus	atrophin-1 related protein	130	25
1696	AAB43791	Homo sapiens	Human cancer associated protein sequence SEQ ID NO:1236.	353	98
1696	AAM79791	Homo sapiens	Human protein SEQ ID NO 3437.	152	77
1696	AAM78807	Homo sapiens	Human protein SEQ ID NO 1469.	152	77